

REVISIONAL NOTES ON AFRICAN  
*CHARAXES*  
(LEPIDOPTERA: NYMPHALIDAE)  
PART V



BY

V. G. L. van SOMEREN

P.O. Box 24947, Karen, Kenya

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# REVISIONAL NOTES ON AFRICAN CHARAXES (LEPIDOPTERA: NYMPHALIDAE) PART V

By V. G. L. van SOMEREN

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## SYNOPSIS

In this paper three new subspecies and two new forms are described of species already dealt with in previous parts of the Bulletin and four new species, six new subspecies and thirteen new forms are described.

### I. SUPPLEMENTARY NOTES AND ADDENDA ON SPECIES PREVIOUSLY DEALT WITH

***Charaxes acuminatus*** Thurau  
(van Someren, 1963 : 211–220)

***Charaxes acuminatus obudoensis* ssp. n.**  
(Pl. 28, figs. 243, 246)

THIS distinct race is represented by several specimens of both sexes, collected by Mr. R. G. T. St. Leger on the Obudo Plateau at 5,200 ft. in eastern Nigeria, formerly

part of British Cameroons. The discovery of this race extends the range of *Ch. acuminatus* very considerably to the west.

MALE. Fore wing length 46 mm. Apex of wing strongly acuminate, tapering and slightly flattened at end of costa, typical of the species. *Upperside*. Resembles somewhat *Ch. a. cottrelli* of the Mwinilunga area of N.W. Zambia in general appearance, but differs markedly by the restricted and more defined bluish white basal areas of both wings; the distal portions of the wings are a richer orange, with the dark pattern more defined. *Underside*. Generally darker in ground colour, but somewhat variable in rufous brownish tones, with a strong satiny sheen on distal borders; oblique dark line strong.

FEMALE. Fore wing length 53 mm. Apex slightly more attenuated than in the male. *Upperside*. Pattern generally similar. *Underside*. Darker more greyish olive.

Holotype male. E. NIGERIA: Obudo Plateau, 5,200 ft., 12.xii.1963 (R. G. T. St. Leger). In B.M. (N.H.).

Allotype female. E. NIGERIA: Obudo Plateau, 25.v.1965 (R. G. T. St. Leger). In B.M. (N.H.).

*Charaxes druceanus* Butler

(van Someren, 1963 : 228-240)

*Charaxes druceanus tectonis* Jordan

(Pl. 29, figs. 25I, 25A)

*Charaxes tectonis* Jordan, 1937: 324. Type male, Cameroon, Maungli.

*Charaxes druceanus tectonis* Jordan; van Someren, 1963 : 230-231.

Originally described as a species, possibly allied to *Charaxes eudoxus* or "*fallax*" Richels = *richelmanni* Rob., *tectonis* was placed by me (1963) as a subspecies of *druceanus*, for reasons stated. Some doubt was expressed as to whether the underside pattern of the unique type could be typical of the race as a whole, in view of the fact that very similar variations had been noted in other subspecies of *druceanus*. This doubt has now been dispelled as a result of the capture of additional specimens on the Obudo Plateau, eastern Nigeria (at one time part of the territory included within the Kamerun, then under German control, subsequently administered by Britain under Mandate).

These specimens were taken by Mr. R. G. T. St. Leger in 1964-65, but all were males, exhibiting a reasonable constancy of underside pattern and agreeing with that of the type, i.e. suppression of the broad silvery discal bars of fore and hind wings, but otherwise conforming to the *druceanus* pattern below and above. Mr. St. Leger supports my view that *tectonis* is a subspecies of *druceanus*.

During a brief visit to Nigeria over the Easter vacation, 1966, a young friend of mine visited the Obudo Plateau in company of Mr. St. Leger, and by the extensive use of baited traps, he was fortunate in securing not only males but also two examples of the hitherto unknown female. These latter exhibit the broad silvery white bars on the underside, characteristic of *druceanus*, thus supplying corroborative evidence that *tectonis* is a race of that species.

FEMALE. Fore wing length 38 mm. *Upperside*. Base of fore wing dark chestnut; black spots in the cell and through the discal line and on the distal portion of the wing as in the male;

the series of spots forming the discal and postdiscal pattern as in the male, but orange-ochreous, the marks in 1a-3 coalescing, those of the postdiscal series rather more rufous; margin with distinct rufous spots, double in 1b. Hind wing pattern generally similar to that of the male, but the basal triangle more blackish brown; the discal band defined on the inner border and almost straight, extending from the costa, where it is 7 mm. wide, gradually decreasing in width to above anal angle, colour orange-ochreous, shaded with rufous on outer border. Black band broad, carrying blue spots in 2-3, double at anal angle; marginal border with well defined orange-ochre contiguous lunules, accentuated by a marginal black line; margin rather serrate below 5; tails longish, upper 7 mm., lower 6 mm., followed by some olive at anal lobe. *Underside.* Fore wing subcostal area and bases of 1b-4 chestnut; the subcostal black marks broadly outlined in silver; sub-basal black marks in 1b-3 strongly black; the discal-postdiscal band whitish, shaded with orange on edges, followed by a series of black lunules of decreasing size from 1b to subapex, slightly accentuated by bluish white; marginal border rufous, with greyish olive rays along veins. Hind wing basal area chestnut, with black lines strongly edged in silvery white, the black angled line crossing 1b-1c to inner fold. Discal band, widest at costa and almost straight along inner edge, tapers to above the anal angle where it crosses the inner fold at right angles; postdiscal chestnut bar widest at 3, fading to ochreous olive to above the anal angle and is distally bordered by a submarginal zone of greyish olive, flushed with rufous scales, the zone outlined in black, the black lines forming a double ocellus at anal lobe. Marginal border orange-tawny, paler between tails, more olive at anal lobe; margin black.

Neallotype female. E. NIGERIA: Obudo Plateau, 5,200 ft., 16.iv.66 (*Stephen Collins*). Another rather damaged female taken in trap, same data, in Coll. J. Brock.

### *Charaxes pythodoris occidentis* van Someren

*Charaxes pythodoris occidentis* van Someren, 1963 : 223.

When I described this subspecies from several males taken in the Central African Republic (French Congo) at Ouesso and Mambili, the female was unknown. It has now been discovered in the Bangui district of the Central African Republic, and I am indebted to Mr. J. Plantrou for a colour photograph of this female.

It is very similar in general appearance to the male, having the same strong blue areas on both wings; the upper blue spots of the discal row larger; the submarginal blue spots in the hind wing more strongly developed. Fore wing length 52 mm. Size larger than the male, but the fore wing less incised on outer border; the hind wing more rounded.

CENTRAL AFRICAN REPUBLIC: Bangui, i. 1964 (*P. Quonian*), in Coll. Plantrou.

### *Charaxes schoutedeni* Ghesquière

(Pl. 29, fig. 257)

*Charaxes schoutedeni* Ghesquière; van Someren, 1964 : 220.

By an unfortunate oversight I omitted to give a photograph of the unique type of this insect when I dealt with this species in some detail, pointing out that it differed in many important respects from the race of *Charaxes smaragdalis leopoldi* Ghesquière of the southern Congo.

Monsieur Jacques Plantrou has recently sent me photos of *leopoldi* from Brazzaville which he suggests are transitional toward *schoutedeni* and, though exhibiting

an extension of the blue in the fore wing toward the base of the cell, nevertheless have the large subapical bluish white spot of the fore wing concave and not convex; moreover, the submarginal blue spots of the hind wing are small, compared with the large spots of *schoutedeni*. Furthermore, the undersides do not agree. Until more specimens of *schoutedeni* are obtained from the type locality its exact status cannot be decided.

***Charaxes penricei tanganyikae*** van Someren

*Charaxes penricei tanganyikae* van Someren, 1966 : 67.

♀ form ***caerulescens forma n.*** (Pl. 29, figs. 255, 256)

Fore wing length 40 mm. *Upperside*. Similar in pattern to the white-barred form of this subspecies, but the hind portion of the broad discal bar and the broad discal band on the hind wing strongly flushed with blue. The fore wing subcostal spots white.

Holotype female. TANZANIA: Kigoma district, Mihumo, vi.1965 (*Japanese Primate Expedition*). To be deposited in B.M. (N.H.).

***Charaxes berkeleyi*** van Someren & Jackson

(Text-figs. 10-11 [aedeagus])

*Charaxes berkeleyi* van Someren & Jackson; 1957 : 52.

*Charaxes berkeleyi* van Someren & Jackson; van Someren, 1966 : 74.

This species was described from the progeny of two females captured in the Karen area of Ngong, Kenya. Details of the families are given in the original publication. Since then, several additional families have been bred from known parents. These families confirm the general characteristics on which the species was based. The species was redescribed in detail in the first section of my revisions dealing with the "Black Charaxes" in 1966 (op. cit.).

Two interesting variations were raised in a recent family and deserve mention.

♀ form ***ngonga forma n.***

(Pl. 29, figs. 249, 250)

*Upperside*. Similar to the nominate form in pattern, but the fore wing spots in the discal row larger and creamy white; the postdiscal spots small and creamy; the hind wing band is white with strong bluish on borders. *Underside*. Pattern similar to that of the nominate form but the discal bars are whitish.

A slight variant has the fore wing discal spots white, but the postdiscal spots are orange.

Range: The distribution of *Ch. berkeleyi*, as known at the time the species was redescribed in 1966, was given in some detail; it has now been discovered that the species occurs on the west side of the Rift Valley and extends in a north-west direction to the eastern side of Mt. Elgon, but in a distinct form worthy of subspecific rank, which is now described. (Map 1).



MAP I.

*Charaxes berkeleyi masaba* ssp. n.

(Pl. 29, figs. 252, 253)

FEMALE. Fore wing length 38 mm. *Upperside*. The pattern differs from the nominate race by having larger and more strongly orange spots in the fore wing and having a wider discal band in the hind wing especially in the subcostal region. *Underside*. Pattern generally similar to that of the nominate race but bolder; the ground colour exhibiting the same variation, either cold greyish or warm brownish. (Pl. 29, fig. 252.)

A slight variant may have the fore wing spots less strongly orange and thus very similar to the nominate, but the hind wing bar is always broader.

*Variation*. Some specimens exhibit a tendency for the discal and postdiscal spots of the fore wing to be slightly or strongly rayed or conjoined. There is thus a marked general similarity to the upperside pattern of some examples of *Charaxes etheocles evansi* van Someren which flies in the same area, and they could be easily confused. (Pl. 29, fig. 253).

MALE. This resembles the male of the nominate race, having well developed blue subcostal marks in the fore wing and a decided greenish postdiscal line in the hind wing.

It is of interest to note that the genitalia of *berkeleyi* differs markedly from that of *Ch. etheocles evansi* van Someren though the general facies of the upper sides are very similar.

Holotype female. N.W. KENYA: East Mt. Elgon, Teldet Estate, 1963. (Coll. Lloyd.)

Range: Most numerous in the east Elgon area from 7,000 ft. in the riverine forests and on the lower slopes at Endebess; also noted in the forest around the Keringet Dam in the Kapenguria area. It thus has a considerable overlap with *Ch. e. evansi*, with which it has hitherto been confused.

These two main aggregates, each with its restricted range, east and west of the Rift Valley, are however partially bridged by a "cline", the members of which, though conforming in the main to the nominate race as regards pattern, have the fore wing spots richly coloured orange-ochre to tawny orange as in the race *masaba*. This cline occupies intermediate territory, west of the Rift in the Visoi-Kilombe Hill area and along the Elgeyu Escarpment to Kaptagat.

Biological Note. Food plants: there is no doubt that the principal food plant of the nominate race in the Ngong-Kikuyu-Nyeri areas is *Albizia gummifera* (Gmel.) (Leguminosae). This is also the food plant of the cline found in the Visoi-Kilombe Hill area. But, as mentioned in the original description of the species, 1957, females do occasionally lay on *Ochna insculpta* Scleumer (Ochnaceae), and on *Scutia myrtina* Kurz (Rhamnaceae). A few specimens were raised on *Scutia* on the Kinangop area.

The early stages, larvae and pupa have been described (op. cit., 1957).

*Charaxes xiphares kilimensis* ssp. n.

(Pl. 28, figs. 244-245, 247-248)

This new subspecies of *Ch. xiphares* belongs to the north-eastern group of the species which, at the present, includes *brevicaudatus* Sch., *maudei* J. & T., *desmondi* van Som. and *kulal* van Som., in which the females exhibit a departure from the usual female pattern of the more southern group, most of which have a large ochre patch in the disc of the hind wing. In the northern group the hind wing discal



patch is white with strong blue scaling on the borders or overall. The fore wing discal bar is white, while the postdiscal spots, which are pronounced, are ochreous to orange-ochre.

This new subspecies from western slopes of Mt. Kilimanjaro exhibits characters which place it intermediate between *brevicaudatus* of the northern end of Lake Nyasa and the southern highlands of Tanzania, which has very short tails in both sexes, and *maudei* of the Usambara Mts., and possibly the Ulugurus, which has very long tails in both male and female.

**MALE.** Fore wing length 49 mm. *Upperside.* Ground colour deep blue-black with strong blue sheen in side light, base of costa browner. Discal blue spots rather small, two spots just beyond end of cell, upper one a streak, spot below larger, spot sub-basal in 4 larger and round, spot below it in 3 more elongate but smaller with a minute dot beyond, no spot in 2 and spot in 1b small and round, but mark in 1a an elongate streak widest proximally and tapering toward postdiscal line. Postdiscal series: two subapical in 8-7 white, spots in 6-4 slightly smaller and blue, spot in 3 slightly larger, that in 1b double. Margin without orange spots except for a slight indication in 1b. Hind wing with a large discal bluish white patch not reaching beyond 5, with strong blue suffusion on the borders, represented at the subcosta by a discrete blue spot; in the postdiscal row there are two discrete blue spots in the upper sector, but there are confluent blue marks on the outer border of the discal patch, with black scaling in between. Submarginal blue spots distinct from 2-6; border of wing with rufous orange lunules from anal angle to 6, edged with black. Tails black, of about equal length, 4 mm. *Underside.* Fore wing ground colour earthy grey with a slight brassy tint, the whole with a satiny sheen in side light except in mid areas of 1 and 2, which are dull; the base of the wing olive crossed by narrow black lines outlined in white; the discal spots represented in olive, proximally edged with black with a suggestion of white in between; the postdiscal spots: the two upper subapical spots ochreous, the rest golden olive, the tornal mark olive to greyish distally with conspicuous double half moon, black in centre, spot in 2 above with slight black distally. Margin with very obscure olive marks, more obvious in 1b and 2. Hind wing ground colour as fore, the sub-base crossed with zigzag olive line narrowly edged in black; the distal zone more bronzy, with a zigzag narrow whitish line from costa to 2, a narrow black line through end of cell area. Postdiscal series of spots from costa to anal angle golden olive, narrowly edged with black proximally, the mark in the anal angle a long crescent double-edged in black; submarginal spots bluish grey, those toward the anal angle with black dot distally; marginal lunules golden olive, more greenish at anal angle; margin black with very narrow white fringe. Tails mostly black with olive mid line at base.

**FEMALE.** Fore wing length 55 mm. *Upperside.* Ground colour purplish brown-black in basal triangle, blacker on distal half of wing. Disc of wing crossed by a broad white curved band extending from the costa to hind margin, consisting of four elongate white marks, including white area on costa, beyond end of cell followed by an off-oval spot sub-basal in 3, the mark in 2 more elongate somewhat pear-shaped, the white mark in 1b double, small mark above, that below a blunted triangle, followed by a long streak in 1a, the marks in 1a, 1b shaded with violet scales. Postdiscal spots distinct, a large subcostal subapical mark is whitish and rounded, spot in 6 smaller, those in 5-2 smaller and orange in colour, mark in 1b double and contiguous with the discal marks. Margin with slight internervular orange marks, double in 1b. Hind wing ground colour black in basal triangle, more purplish black in dark border; disc of wing with large violet-blue patch, more whitish toward bases of 5-6, with a large whitish quadrate mark at subcosta in 8; the discal patch itself shaded with violet and on its distal border is a series of dyslegnic rounded orangish marks from 2-5. Submargin with a series of lilac-blue spots, distinct from anal angle to 5; inner margin with strong orange border of confluent lunules which shade to olive-green at anal angle; margin black with narrow white fringe. Tails black, 5 mm. long. *Underside.* Ground colour as in the male. Basal triangle of fore wing with series of

strong black lines margined with bluish white, three crossing the cell and two at end of cell, with a black spot sub-basal in 1b and at sub-base with a short bar in 2. The discal white bar conspicuously outlined proximally in black; postdiscal spot white in subapical area, then increasingly orange to 1b, with the double black spot in 1b and 2 strongly marked; admarginal with slight orange lunules strongest in 1b. Hind wing ground colour as fore; fine black lines outlined in white at basal triangle; discal bar represented by a pale ochre-greyish band, dyslegnic on its outer border but edged internally by a narrow black and white zigzag line; postdiscal series of rather indistinct ochreous lunules, shaded brownish in lower half, slightly more olive and more defined above anal angle; submarginal series of greyish lunules, broadly edged with black distally, touch the marginal orange-ochre lunules which shade to olive at the anal angle; extreme edge black.

Holotype male. TANZANIA: Lower slopes of West Kilimanjaro at Maua Estate, ix.1966 (Collector *Edmund*, for Major Grahame).

Allotype female. Taken in the same locality, ii.1964 (*A. F. Brown*). Both deposited in the B.M. (N.H.).

Range: This subspecies is at present known only from the West Kilimanjaro area.

## 2. THE *CHARAXES CEDREATIS-VETULA* COMPLEX

When Rothschild & Jordan published their monograph of *Charaxes* in 1898-1900, the position of many of the black males, so confusingly alike, was left in doubt; equally so, the many female forms, which could not be associated with any given males, were left in a state of chaos. Typical of this confusion are the many names, to which they added several, all lumped under the oldest named form, namely *Charaxes etheocles* (Cramer, 1777). They predicted however that in the course of time, with more extensive collecting and breeding from known parents, this aggregate would be divided into authentic species and subspecies.

A tentative re-classification of the complex was put forward by van Someren & Jackson (1952). This was based on considerable field work, breeding from known females and a re-assessment of the vast amount of material in the B.M. (N.H.), which now combines the bequests by Rothschild, Joicey & Levick, together with numerous large collections donated in the past fifty years. Very considerable use was made of collections in Continental and African museums and in private collections. During the past decade, particular attention has been paid to verifying published records by examining the actual specimens, to mapping the distribution of most of the species within this complex and to breeding them where possible.

*Charaxes cedreatis* was described by Hewitson in 1874, based on two specimens, one of which was selected as type and recorded as a male; in fact both are females. The locality was given as "West Africa", but Hewitson refers to these specimens again in 1876, and gives the restricted locality of the type as Fernando Po. Rothschild however placed *cedreatis* as one of the numerous female forms of *etheocles* Cramer, 1777.

In 1932 I suggested that *cedreatis* Hewitson, *protocedreatis* Poulton and *lutacea* Rothschild were sexes of one species, based upon the evidence of bred families from *cedreatis* females. I did not however completely disassociate it from "*etheocles*" s. l., but this was done by van Someren & Jackson (1952).

When we reviewed this species, it seemed reasonable from the evidence before us, to recognize two races, a northern and a southern, based on slight differences in the male and considerable colour differences in the females. All the northern females were *cedreatis*, and the very few from the southern zone were *vetula* Rothschild, which we considered to be a form of *cedreatis*. We made a bad mistake, however, in recording the type locality of *vetula* as Ogowe River in Angola instead of in Gabon! Thus the type locality of *vetula* lies between the two places mentioned by Hewitson for *cedreatis*. It is also unfortunate that we selected as allotype male of *vetula*, a specimen taken at Geita, south of Lake Victoria, in Tanzania, where a female *vetula* had been captured, instead of one of the many male specimens taken in Gabon, but these we had placed as *cedreatis cedreatis*. Thus we overlooked that the two supposed races overlapped to a considerable extent.

It has now been ascertained that *vetula* occurs in eastern Nigeria, below the Obudo Plateau (St. Leger in lit.). Moreover, as a result of recent collecting it has been shown that *lutacea* males and *cedreatis* extend to Katanga and to north-western Zambia, thus cutting right across the supposed range of *vetula*. Further to the north-east, in N.W. Kenya, *vetula* and *cedreatis* have been taken in the same forests and in one instance, in the same trap. It is therefore necessary to re-assess the species in the light of our present knowledge.

### *Charaxes cedreatis cedreatis* Hewitson

(Pl. I, figs. 1-6)

*Charaxes cedreatis* Hewitson, 1874 : 247, ♂, ♀ (W. Africa).

*Charaxes cedreatis* Hewitson; Hewitson, 1876 : (Restricted locality, Fernando Po).

*Charaxes carteri* Butler, 1881 : 108, ♀ (Accra).

*Charaxes etheocles cedreatis* Hewitson; Rothschild, 1900 : 484, ♀ form.

*Charaxes etheocles lutacea* Rothschild, 1900 : 485, ♂ form. (Beni, Congo). **syn. n.**

*Charaxes etheocles cedreatis* Hewitson; van Someren & Rogers, 1932.

*Charaxes etheocles lutacea* Rothschild; van Someren & Rogers, 1932.

*Charaxes cedreatis* Hewitson; van Someren & Jackson, 1952 : 276.

*Charaxes cedreatis vetula* Rothschild; van Someren & Jackson, 1952 : 277.

It has been proved by breeding that *lutacea* Rothschild is the male of *cedreatis*. The males of this species exhibit little variation on the upperside; the number and size of the blue spots on the fore wing may vary slightly. The submarginal white spots on the hind wing, usually distinct, may be small or even obscured. On the underside, as in many species of this "black complex", the tone of the ground colour may vary, and more particularly, the strength of the black and dark brown pattern may vary from very strongly to lightly marked. These variations are not related to any geographical area but may occur throughout the distribution of the species; they may occur in a single bred family.

MALE. Fore wing length 35-36 mm. Shape slightly incurved at 3-4 on outer edge. *Upper-side*. Ground colour blue-black but with strong greenish sheen toward and at base; a small blue spot at upper end of cell, a larger subcostal spot in discal line; one or two bluish to white

spots in subapex; marginal glaucous spots usually distinct, largest at the tornal angle at 1b. Hind wing ground colour as fore wing, with slight greenish sheen over disc; there may be a trace of a greenish wavy postdiscal line most evident opposite the tails; submarginal linear white marks usually distinct, double at anal angle; border reddish above upper tail, or reddish mixed with greenish to anal angle; extreme edge black; tails moderately long, of about equal length, 4 mm. *Underside*. Ground colour sepia-brown, slightly browner on border; disc of fore wing with a satiny bar most evident and expanded at 4-5 and toward costa at end of cell; basal black marks usually strong up to discal line; postdiscal dark brownish spots often strong, black at tornus and outlined with greyish. Hind wing ground colour as fore wing; basal black line fine, divided by a satiny bar in sub-base and a more distinct wavy bar through discal line followed by a strong dark zone bearing the series of olive and maroon lunules which are usually strong; the border is more satiny and the submarginal line of whitish linear marks edged with black distally, strong. The margin is usually strongly reddish to upper tail then olive to anal angle, which carries two black dots.

*Variation*. Exhibiting little difference on the upper side, the underside ground colour is less strongly sepia, more greyish brown, thus the satiny bars are not in strong contrast, and the dark marks at the base and lower part of the fore wing much reduced. A similar suppression of pattern is seen in the hind wing. This type of variant is well illustrated in the male we selected and allocated to *vetula* of the Geita area. (Pl. 1, fig. 5.) However, typical *lutacea* also occurs with *vetula* females, as in Gabon.

*FEMALE*. The type specimen is rather worn and somewhat faded. (Pl. 1, figs. 3, 4.) It exhibits certain features which are of interest from the point of view of evolution of pattern. *Upperside*. Ground colour from base of fore wing including most of the cell, the sub-base of 2, the basal area of 2b and most of 1a, dull tawny olive. A curved white bar crosses the wing from a white spot in upper part of end of cell followed by larger spots at base of 4, a larger mark basal in 3 in the discal line, a long mark in 2 and 1b representing the fusion of white marks in discal and postdiscal lines; those in the postdiscal line represented in 3-5 by small white spots and larger ones in subapex in 6-7. In addition there are two subcostal white dots in the upper discal line. Apical half of wing and outer border black, and pale whitish lunules are present on the margin, most obvious at the tornal angle. The hind wing is mostly tawny olive from the base to postdiscal line, represented at the costa by two discrete spots; the dark blackish border is narrow, widest at upper angle; the submarginal row of linear white marks distinct; marginal border above upper tail reddish then olive to anal angle. *Underside*. Ground colour brownish grey with slight olive tone; fore wing basal area with strong black marks. Pattern of above represented as whitish marks in the curved bar and as pale spots in the apical half of the wing. Black marks at and above the tornus strong. Hind wing pattern rather subdued; submarginal pale line fairly clear; margin reddish above upper tail, olive to anal angle. (Pl. 1, fig. 4.)

Although form *cedreatis* has the widest range, and indeed is the only form recorded from most of W. Africa, with the exception of type *vetula* from Gabon and another specimen from eastern Nigeria, and is the dominant one in the Congo and Uganda, its overall distribution embraces all the localities from which other female forms have been described. This precludes the recognition of any subspecies. (*Vide* Distributional Map 2.)

*Variation*. (a) Ground colour and pattern very similar to the type, but curved white bar more restricted in 1b in discal line; no white spots in upper discal line; the postdiscal white spots restricted to two in subapex. Hind wing as in nominate form. Underside dark olive-grey-brown; pattern strong.

*Variation*. (b) very similar to (a) but base of fore wing darker, more brownish olive; the spots of the white bar more restricted especially in 1b to postdiscal line. Hind wing discal area paler tawny olive. Underside more greyish olive and the pattern less strong.



MAP 2.

♀ form *protocedreatis* Poulton

*Charaxes etheocles protocedreatis* Poulton, 1925 : 556.

*Charaxes etheocles protocedreatis* Poulton; van Someren & Rogers, 1932.

Somewhat like var. (b) above but curved bar of fore wing distinctly creamy ochre in 1a-1b; the discal and postdiscal spots rather obscured; no marginal spots or if present only faintly indicated at tornus. Hind wing basal area dark brownish olive but the distal half of the patch paler olive ochre contrasting with the rather wider black border; submarginal spots rather obscured; marginal border as usual. Underside ground colour olive greyish; pattern rather obscured except for curved bar of fore wing. (Pl. 2, fig. 15.)

♀ form *inexpectata* forma n.

This remarkable form would seem to be a development from *protocedreatis* but exhibits a pattern unlike any other in *cedreatis*. *Upperside*. The fore wing pattern is basically similar to that of nominate *cedreatis*, but the basal tawny olive area is darker and more restricted in 1a-2 by a prolongation of the discal pale marks of the curved white bar in these areas basad; this bar is white in its upper segments then becomes creamy in colour. The distal half of the the wing is black, but the spots in the upper discal line and those of postdiscal row are large and distinct though that in 4 is obscured. The marginal spots are mostly small, but those at the tornal angle, large, especially in 1b. The base of the hind wing is tawny olive but encroached upon by the wide creamy band which is complete from the costa to just above the anal angle.; there is some tawny olive scaling on the lower outer border. The black border is widest at 7-6 then narrows slightly and carries the usual series of submarginal linear white marks; the marginal border reddish above the upper tail becomes olive to the anal angle; extreme edge black. Tails long, upper rounded at end, 6 mm. long, lower pointed 5 mm., black with median orange-red line. *Underside*. Ground colour greyish olive, slightly darker brownish at border of fore wing; basal black marks strong to discal band; the pattern of above showing up strongly and pale cream in colour; postdiscal row of dark spots distinct from subapex to tornal angle where they are black. Hind wing ground colour greyish olive at base crossed by fine black lines; discal band strongly marked but less wide than above tapering from mid point to above the anal angle, bounded distally by a strong row of olive-maroon lunules; border slightly darker olive-grey with submarginal row of linear white marks strong carrying black dots in lower segment in region of tails; marginal border narrow, reddish above upper tail then olive to anal angle.

Holotype female. TANZANIA: N.E. of Lake Tanganyika, Kigoma district, Mukuyu Forest, 5,200 ft., iv.1965. Captured by Major I. Grahame's collector. To be deposited in the B.M. (N.H.). (Pl. 2, figs. 13, 14.)

A second specimen has the upper spots of the fore wing white; and those of the curved bar slightly less ochreous. The hind wing band is wider and slightly more whitish. Taken at Muhimo, Kigoma district, N.E. of Lake Tanganyika, vi.1965 (*Japanese Primate Expedition*) (Pl. 1, figs. 7, 8.) The associated males are typical *lutacea*.

Two examples of this new form have recently been taken in the Ivory Coast by A. Gally, and a third specimen by the late Mr. T. H. E. Jackson's collector in the same area.

♀ form *vetula* Rothschild

*Charaxes etheocles* f. *vetula* Rothschild in Rothschild & Jordan, 1900 : 488.

The type came from Ogowe River, Gabon, and is figured in Rothschild's monograph. This type locality is thus within the range of nominate *cedreatis* Hewitson.

*Upperside*. Pattern is very similar to *cedreatis* as regards the curved fore wing bar, but the basal area is brownish black; the distal half of the wing black, with an indication of a white subcostal spot in the discal line, two white spots in subapex while those of the postdiscal series are faintly indicated. The inner ends of the white marks in 1a-1b are bluish; marginal pale spots faint, most obvious at tornal angle. Hind wing basal area brownish black; disc of wing with a large blue patch tapering toward the anal angle, represented at subcosta by two blue spots one in discal and one in postdiscal line; border black, widest at upper angle; submarginal row of linear white marks very distinct; marginal border reddish to between tails then olive

to anal angle. Tails moderately long, 5 and 4 mm. *Underside*. Ground colour greyish olive or pale brownish, darker on border of fore wing. Basal black marks strong or weak; white curved bar distinct; a satiny quadrate mark sometimes present at subapex; submarginal series of dark spots are black at tornus but fading out toward the apex. Hind wing ground colour greyish olive or brownish, pattern rather obscured except in lower part of postdiscal line; submarginal pale line usually distinct; marginal border mostly brick-red but olive at anal angle. (Pl. 2, figs. 9, 10, Type. Gabon.)

*Variation*. (a) *Upperside*. Very similar to nominate specimen but some indication of dark ground colour invading the white marks in 1a-1b in the line of junction of the discal and postdiscal spots; upper subcostal spots in discal row free; spots of upper postdiscal row small but distinct. *Underside*. With a rather stronger pattern, division of discal and postdiscal white marks 1b-2 clearly indicated; submarginal marks in fore wing not strong. Hind wing with satiny bar in discal line; lunules large in postdiscal zone; submarginal row of white spots distinct. Geita, Tanzania.

*Variation*. (b) *Upperside*. Basal area blacker with distinct blue sheen, particularly toward the inner edge of the curved white bar, the blue colour suffusing most of the marks in 1a-1b; subcostal mark in discal row faint or absent, but postdiscal spots are blue; marginal spots glaucous but faint except for double mark at tornal angle 1b. Hind wing ground colour at base, black, black also along costal border thus restricting the upper border of the strongly blue patch in the disc; submarginal row of linear marks bluish white, more strongly blue at anal angle; marginal border a mixture of reddish and glaucous to upper tail then olive to anal angle. Tails shorter: 4 mm. *Underside*. Ground colour olive greyish, brownish on border; pattern rather obscured except for white bar in fore wing and white submarginal spots in hind wing. (Pl. 2, fig. 11, Kakamega, Kenya.) (Rydon Coll.)

*Variation*. (c) *Upperside*. Very similar to (b) with the same strong blue invading the proximal two thirds of bar spots in 1a-1b. The hind wing blue band goes right through to the costa and crosses the inner fold above the anal angle. *Underside*. Ground colour and pattern as in (b). (Pl. 2, fig. 17, Visoi Gap, Kenya.) (Bailey Coll.)

### ♀ form *pseudosmaragdalis* van Someren & Jackson

*Charaxes cedreatis vetula* ♀ f. *pseudosmaragdalis* van Someren & Jackson, 1957 : 50.

At present known only from a single specimen taken in the Djelo-Binza area of Leopoldville, lower Congo. It bears a superficial resemblance to the male of *Charaxes smaragdalis smaragdalis* Butler.

*Upperside*. Base of fore wing brownish black with a strong greenish blue suffusion up to the discal line, with a stronger blue sheen in the cell. Discal spots large, two upper elongate, bluish white, a rounded mark sub-basal in 4, that in 3 more quadrate and set out a little, followed by and conjoined to larger blue mark in 2, and a larger mark in 1a-1b conjoined to the blue spot in postdiscal row, the remaining postdiscal spots in 2-5 in a slight curve terminate in the two larger subapical spots which are white. Margin with indication of diffuse glaucous marks. Hind wing basal area as fore wing merging into the blue discal patch which extends from the costa to above the anal angle. Border black with distinct linear white marks; margin with reddish scales to upper tail then olive to anal angle. *Underside*. Light rufescent brownish; black lines thin to discal zone; pattern of upperside represented by slight greyish brown marks, the lower postdiscal ones margined in black, proximally in 1b-2 where the tornal marks are black. Hind wing ground colour as fore wing, a pale bar present in the discal line finely outlined in black proximally; the postdiscal row of buff and maroon lunules strong; whitish marks in submargin strong; border reddish above upper tail then olive to anal angle carrying black dots in region of tails. (Pl. 3, figs. 18, 19, deposited in Central African Museum, Tervuren, Belgium.)

♀ form *dewitzi* Butler

*Charaxes alladinis* Dewitz, 1887 : fig. 8.

*Charaxes dewitzi* Butler, 1895 : 255.

The type of this insect is lost. It was described as the male of *alladinis* Butler by Dewitz, but was subsequently shown to be a female and was renamed *dewitzi* by Butler. It is figured in colour in Dewitz' original paper. It appears to be nearest to the female form *pseudosmaragdalis*, differing mainly in the absence of the post-discal spots in the fore wing other than the two subapical ones; otherwise, the descriptions agree very well. The specimen came from Pungo Andongo in northern Angola. (Pl. 3, fig. 20, [photograph of original figure.])

***Charaxes chepalungu* sp. n.**

(Pl. 3, figs. 21-25)

*Charaxes cedreatis vetula* Rothschild; van Someren & Jackson, 1952 : 278.

This species was briefly referred to, with a query, in van Someren & Jackson (1952), under the heading *Charaxes cedreatis vetula*. Two females and several males were taken in the Chepalungu Forest, lower Sotik in September, 1949 and several males in the Mara district. Subsequently, an interesting gynandromorph, male on right side, female on left, was taken by the late R. T. Evans at the edge of the Chepalungu Forest. The male half agrees exactly with the males taken previously, and the female side with the previously known females, tentatively placed to *vetula*. Since these males do not agree with any form of *lutacea*, the male of *cedreatis vetula*, it becomes desirable and necessary to disassociate the Chepalungu insect from *cedreatis*; moreover, *cedreatis* ♂ *lutacea* occurs in the Mara area.

**MALE.** Fore wing length 31-33 mm.; shape of fore wing only slightly incurved on outer border, thus somewhat resembling *Charaxes ethalion*. *Upperside.* Fore wing ground colour velvety black with slight indication of glaucous spots on margin between veins; blue subcostal spots very small and limited to one beyond end of cell and one in subapex, or these spots may be obscured. Hind wing ground colour velvety black; submarginal row of spots whitish, very small and may be obscured; marginal border greenish or with very slight maroon scaling above upper tail, all rather obscured. Tails short, robust, upper 3 mm. lower 4 mm. Margin at veins slightly dentate. *Underside.* Fore wing ground colour greyish brown basally, more brownish on distal third; slight satiny bars in discal and postdiscal lines; basal black lines thin or may be strongly indicated in lower half of wing especially at tornus, with submarginal dark marks diminishing toward subapex. Hind wing ground colour greyish brown with a satiny bar in discal line, followed by a darker brownish bar distal to which the postdiscal zigzag band of lunate olive and maroon may be strong, or may be mainly olive in colour. Submarginal row of linear marks lilac or greyish with black dots present in region of tails, double at anal angle; margin narrowly maroon above upper tail then olive to anal angle. There is some variation in the strength of the underside pattern.

**FEMALE.** Fore wing length 35-36 mm. *Upperside.* Ground colour basal area blackish brown, distal half black, separated by an oblique white bar made up as follows: a small white spot at upper end of cell, a quadrate mark beyond end of cell followed by an elongate triangular, at base of 3, a long white mark in 2 extending to postdiscal line, the marks in 1a-1b blue shading to white in postdiscal line; the postdiscal spots small and obscured in 3-5, but the subapical



punctiform and white; one or two obscure whitish marks midway in 6 and subcosta. Margin with obscure internervular glaucous marks. Hind wing brownish black at base followed by a large irregular blue discal patch, tapering toward the anal angle, represented in subcosta by blue marks in postdiscal line; border black, carrying distinct linear white marks on outer edge; margin reddish from above upper tail to base of lower, anal angle olive. Tails rather thin, upper 5 mm., lower 3 mm., black edged with maroon-olive mid line. *Underside*. Fore wing ground colour clayish brown with white pattern of above well represented and with pale satiny spots in the postdiscal row; black tornal spots strong but black lines toward base rather fine. Hind wing ground colour clayish brown with fine black lines at basal area; postdiscal zigzag line of ochreous olive-maroon lunules fairly well marked.

*Variation*. In one specimen, the white marks in the fore wing rather more extended and the hind wing blue patch more extended basad over cell.

Holotype male. N.W. KENYA: lower Sotik area, Chepalungu, viii.1950 (*van Someren*).

Allotype female. Same locality, ix.1946 (*van Someren*). Deposited in B.M. (N.H.).

Range: The topotypical series of ten males and three females were taken in the Chepalungu Forest in lower Sotik and in the riverine forests along the Mara River. Identical males have been captured in the Serengeti Game Park across the border in Tanzania. Two males which appear to belong to this species are recorded from Mukuyu in the Kigoma area, Tanzania. There is thus an overlap with both *cedreatis* and *ethalion* ssp. The species has not been bred, but the capture of the gynandromorph verifies the association of males and females. (Map 2.)

Males were dissected by Mr. Bennett of the B.M. (N.H.) who reports that they differ appreciably from *ethalion*, and are more sinuate than *lutacea* (Text-fig. 20 [aedeagus]) with the toothed lobe placed less toward the distal end of the aedeagus.

#### SYSTEMATIC LIST

##### *Charaxes cedreatis* Hewitson

*Charaxes cedreatis cedreatis* Hewitson, 1874. Type locality: Fernando Po. Ranges of various forms:

Synonym: *lutacea* Rothschild, 1900.

♀ f. *cedreatis* and variants:

W. Africa: Ivory Coast, Ghana, French Guinea, Fernando Po, French Cameroons, N. Angola, Congo central, Kasai, Katanga.

Uganda: S.W., W., C. and E. Uganda.

Kenya: N.W. Kenya, Trans Nzoia, Kaimosi, S. Kavirondo, Nandi, Lumbwa, Ravine, Lembus, Pekera Gorge, Visoi Gap-Kilombe Hill; all west of the Rift Valley.

Tanzania: Usukuma, Serengeti, Geita, south of Lake Victoria; Bukoba and south of the Kagera River; N.E. Lake Tanganyika, Kigoma.

Zambia: Mwinilunga area.

♀ f. *protocedreatis* Poulton, 1925. Type locality: Uganda, Jinja.

Uganda: Central and eastern; Jinja.

Tanzania: Serengeti, Orange River forest.

- ♀ f. *inexpectata* forma n. Type locality: Tanzania, Kigoma, Mukuyu Forest.  
Tanzania: Kigoma area, Mukuyu Forest, and Muhimo.
- ♀ f. *vetula* Rothschild, 1900. Type locality: Gabon, Ogowe River.  
W. Africa: Gabon, Ogowe R., Eastern Nigeria below Obudo.  
Tanzania: Geita, S.W. Lake Victoria. (1 specimen.)  
Uganda: Rutenga, Kigezi, S.W. Uganda. (1 specimen.)  
Kenya: Kaimosi Forest, N. Kavirondo; Kilombe Hill, Visoi Gap,  
(4 specimens.)
- ♀ f. *pseudosmaragdalis* van Someren & Jackson, 1957. Unique.  
Type locality: W. Congo, Leopoldville district, Djelo Binza.
- ♀ f. *dewitzi* Butler, 1895. Var. of above?  
♂ Type locality: N.W. Angola, Pungo Andongo.

***Charaxes chepalungu* sp. n.**

*Charaxes chepalungu* sp. n. Type locality: Kenya, Chepalungu Forest, Lower Sotik. Range: Kenya, Chepalungu, Mara River and Tanzania, Serengeti.

3. **CHARAXES VIRILIS** ROTHSCHILD, **C. KHEILI** STAUDINGER,  
**C. NORTHCOTTI** ROTHSCHILD and **C. MAFUGA** VAN SOMEREN

***Charaxes virilis*** van Someren & Jackson

- Charaxes etheocles* ♀ f. *virilis* Rothschild; van Someren & Jackson, 1900 : 487.  
*Charaxes etheocles* ♀ f. *virilis* Rothschild; Aurivillius in Seitz, 1912 : 136.  
*Charaxes etheocles* ♀ f. *virilis* Rothschild; Poulton, 1918 : 71-73.  
*Charaxes etheocles* ♂ f. *lenis* Jordan, 1929 : 483. Type loc., Uganda, Mulange, Mabira Forest.  
*Charaxes virilis* van Someren & Jackson, 1952 : 283-284.

The type of *virilis* is a female and was described as a female form of *etheocles* by Rothschild in 1900. Poulton (1918) refers to a series of specimens bred from larvae found feeding on *Adenthera pavonina* L. (Mimosoidea), (native to Tropical Asia, and introduced into other parts of the Tropics) at Ibadan, S. Nigeria by Lamborn and Farquharson. The series contained four males and three females and Poulton makes special reference to the females which are male-like, though somewhat variable. No particular mention is made of the males, which is somewhat surprising since the male of *virilis* had not been described. Dr. Jordan examined the material and agreed that the females were nearer to *virilis* than to *alladinis* Butler. The males were apparently considered to be just *etheocles* (Cramer). In 1929 Dr. Jordan described *etheocles* male form *lenis* (not *leonis* as given by Wallace Peters, 1952). There were three specimens taken in the Mabira Forest, Uganda. He did not associate these males with female *virilis*, but he compared them with "*etheocles*" ♂ form *cytila* which I now know to be the male of *manica* Trimen, 1894. There is no doubt that *lenis* is the male of *virilis*, which is a species distinct from *etheocles* (Cramer) (s. str.). Whether *virilis* can be divided into western and eastern geographical races will now be discussed.

Western aggregate, topotypical material: Ghana to Cameroon and Congo.

**MALE.** Fore wing length 33–35 mm. Shape somewhat like *ethalion*, the outer border of fore wing only slightly incurved at 3–4. *Upperside.* Ground colour velvety black with a strong overall blue sheen, more especially over the cell. Blue spots in the subcostal area rather variable, but there is usually one at the upper end of cell, one beyond in discal line, no spots in subapex; marginal glaucous lunules ill-defined but often contiguous at the hind angle. Hind wing black, sometimes with a very faint indication of a greenish or bluish wavy line, strongest opposite to tails; submarginal row of linear marks, bluish white or blue, complete; border reddish or bluish green above upper tail then more olive at anal angle; tails short and thin, upper sometimes stumpy 5–4 mm., lower 3–4 mm. *Underside.* Somewhat variable, usually clay-coloured with a purplish brown tone overall; satiny bars more greyish; black dots and lines in basal triangle of fore wing distinct, but rather obliterated in distal half, but tornal black mark strong. Hind wing ground colour as fore wing, basal black marks fine and indistinct; sub-basal and discal satiny bars fairly distinct; postdiscal wavy line of olive and maroon lunules defined but may be somewhat obscured in the general brownish tone; submarginal line of lilac marks with black dots distally in region of tails fairly strong; marginal border narrow, slightly reddish above upper tail then olive to anal angle.

*Variation.* Some specimens may have the fore wing devoid of blue spots in the costal area and the marginal lunules may be very small. The underside ground colour more greyish brown and on the hind wing the satiny bars may be strong. An aberration is figured in which the subcostal spot in the discal line is enlarged and elongate, represented by two long, contiguous, blue streaks; the ground colour more purplish brown. (Pl. 4, fig. 32.)

Eastern aggregate. Uganda, from Budongo Forest to Kenya border.

**MALE.** Eastern males are, on the whole, more compact looking than their western counterparts, due mainly to the fact that the outer margin of the fore wing is less incurved, the wing thus looks less elongate. *Upperside.* The subcostal blue marks vary in number and size; the marginal glaucous marks are usually obscured. On the hind wing the submarginal whitish marks are usually distinct and well developed. *Underside.* Pattern variable, weak, moderate or fairly strong but always with a strong vinaceous or rusty purple bloom overall. The postdiscal wavy line of lunules well marked.

There is thus little to distinguish western from eastern males on the upper side. In shape, eastern males are more compact and the underside is more rusty, or cinnamon-brownish with a strong vinaceous tone overall. (Pl. 4, figs. 34–37.)

Western aggregate.

**FEMALES.** The type female on the upperside is blue-black with steel-blue reflections especially on the hind wing. Fore wing marks limited to one blue subcostal spot in discal line; margin with large glaucous lunules. Hind wing with a indication of obscured greenish blue row of spots in the postdiscal line; submarginal white spots large and distinct. Border ochre reddish above upper tail, more olive to anal angle; edge black; tails thin, upper 6 mm., lower 5 mm. (Pl. 4, figs. 26, 27.)

*Variation.* Topotypical females exhibit a considerable degree of variation in the upper side markings. They may be as in the type or (a) there may be obscure marks in 2–3 in the discal line and obscure marks in the postdiscal row from sub-apex to 1b; (b) the spots on the fore wing may be purplish, though obscured in the postdiscal line and represented in the hind wing in the same zone by purplish marks; (c) the fore wing spots may be as in (b) but discal and postdiscal spots slightly whitish.

The undersides in all these forms are similar, clayish brown, slightly darker brownish between the discal and postdiscal zones and in the curve of the wing. The pattern of black marks usually thin and faint except for the black tornal mark and one more proximad in the same area, the tornal mark with a greyish surround. The hind wing ground colour as fore with very faint marks in the basal half; the postdiscal row of lunules obscured, but the submarginal series of pale marks to the anal angle fairly strong. The border reddish to the upper tail then olive to the

anal angle; the postdiscal mark above anal angle strong with an irregular whitish mark above it.

Females from the Moyen Congo area exhibit the same variations on the upper side but the pattern of the underside is stronger. (Pl. 4, fig. 31.)

#### Eastern aggregate. Uganda.

FEMALES. These exhibit the same character as regard shape as noted in the males. The markings on the upperside of the fore wing as in western examples, but less strong, but the marginal glaucous lunules are stronger; the submarginal white marks on the hind wing larger and stronger. The underside pattern is stronger and the ground colour richer vinaceous cinnamon-brown. (Pl. 4, figs. 28, 29.)

Whether or not the combined characters of males and females of the eastern aggregate warrant subspecific ranking is a matter of opinion; if so, the name *lenis* Jordan, applied to the eastern male (Mabira Forest, Uganda) is available, the western aggregate being *virilis*.

The species has not been bred in the east.

Range: The Western aggregate: Ivory Coast—Ghana to Nigeria, Cameroon, Central African Republic, Moyen Congo, Central Congo eastward to Semliki River and south to upper Katanga.

The Eastern aggregate: Uganda, from the Budongo Forest in the west to Busogo in the east to the Busia area on Kenya border. (Map 3.)

### *Charaxes kheili* Staudinger

(Pl. 5, figs. 38, 39, 40, 43)

*Charaxes kheili* Staudinger, 1896, *Iris* 9 : 216.

*Charaxes kheili* Staudinger; Rothschild, 1900 : 473.

*Charaxes kheili* Staudinger; Jackson, 1957 : 66-67. (*partim*).

This species is still rare in collections, and little is known about it, the female being still unknown.\* The type is in the Berlin Museum and was kindly forwarded to the B.M. (N.H.) in 1956 for examination and dissection of genitalia when the late Mr. T. H. E. Jackson was working on the butterflies of the Kigezi country, Uganda, more particularly on the species of black males of the "*etheocles* group" which exhibited characters very similar to the description of *kheili* Staudinger. Jackson came to the conclusion that these black males were not *kheili*, and referred them to *cedreatis vetula* on the evidence of a *vetula* female taken in the same area. I have now separated these males under the name *Charaxes mafuga* sp. n.

The type of *kheili* was taken in the Njam-Njam savanna country in the north of what is now the Central African Republic. I have been able to locate a second specimen taken in the same general area (unfortunately without exact data label) in the Central African Museum, Tervuren, Belgium and this has been sent to me by Dr. Berger for critical examination. Dr. Berger informs me that the Museum has three other male specimens taken at Sassa & Yakoma in the Njam-Njam country, which agree with the specimen sent.

\* The female has now been taken and will be described by MM. J. Plantrou & Drage.

MALE (type). Fore wing length 36 mm. *Upperside*. Ground colour black with blue sheen at base and over cell; pattern: a blue spot at upper cell-end, two spots beyond, the subcostal one large and whitish the lower small and bluish; three subapical spots in line, upper ones whitish, in postdiscal row with spots in 4-3 set in a little, that in 2 set out a little followed by an elongate double mark in 1b and a transverse mark in 1a, on hind margin; marginal glaucous marks complete and distinct. Hind wing ground colour black, with a strong greenish blue postdiscal irregular band extending from above anal angle and terminating in a small spot in 6; submarginal linear marks bluish and well marked; border bluish to lower tail then olive at anal angle; extreme edge black with slight white fringe. Tails rather thin, of about equal length, 5 mm. *Underside*. Greyish brown with darker brown zone between paler discal line and postdiscal series of paler spots, both proximally outlined in black; submarginal dark marks, black at tornus become less distinct up to subapex. Basal lines moderate. Some satiny



MAP 3.

sheen over discal and postdiscal zones. Hind wing, ground colour as fore wing but more uniform, as basal lines are fine, but satiny bar in sub-base and in discal line moderately strong; postdiscal irregular line of lunate marks, ochre-olive and maroon well marked; submarginal row of linear marks strongest in region of tails; border reddish to upper tail then olive to anal angle, which carries double black spots. (Pl. 5, figs. 38, 39.)

*Variation.* Fore wing. *Upperside.* Subcostal marks not so marked; the postdiscal row not so strong from 2-4, but there is an indication of a blue mark in discal line sub-basal in 3; marginal glaucous marks smaller. Hind wing postdiscal blue-green band strong as in type but extending to 5 only. *Underside.* Not so strongly marked and more uniform on the hind wing.

Range: The known range of this species appears to be the savanna country to the north of the Central African Republic in the region of the Shari-Ubanji River. How far south it extends is uncertain, but there is a record of the insect from north of Bangui (J. Plantrou, in lit.). (Map 3).

I have before me an interesting specimen of a male *Charaxes* taken by one of Mr. Jackson's collectors at Metu, West Madi, Nile Province, Uganda, which closely resembles the variety of *Charaxes kheili* mentioned above as regards the upperside of both wings with the exception that the marginal glaucous marks of the fore wing are larger and more diffuse. The underside however, though resembling *kheili* in general pattern, is more strongly variegated, the markings being stronger, thus having a marked resemblance to this respect to the underside of a boldly marked variation of *Charaxes northcotti* from the Bouar area of Central African Republic (Cf. fig.) described later. (Pl. 5, figs. 40, 43.)

It is impossible to gauge the degree of variation of the underside of *kheili* owing to paucity of material.

### *Charaxes northcotti* Rothschild

(Pl. 5, figs. 41, 42, 46)

*Charaxes northcotti* Rothschild, 1899, *Nov. Zool.* 6 : 171, Pl. 8, fig. 5.

*Charaxes northcotti* Rothschild; Peters, 1952 : 54.

There appears to be some justification for uniting *northcotti* with *kheili*, but the evidence is not entirely conclusive. The ranges of the two do not seem to overlap, but adequate material of each is sadly lacking, and only males are known.

**MALE.** Fore wing length 36-38 mm. *Upperside.* Ground colour black with a slight greenish sheen over base of fore wing. The pattern of the fore wing is very similar to that of *kheili*, but the blue markings in the postdiscal series are larger, and in the discal row there is a large spot sub-basal in 3 and a smaller one below in 2. In the hind wing the postdiscal greenish blue band is wider than in *kheili*, and the outer margin nearer to the submarginal row of blue linear marks and on the inner border it extends proximad toward the cell so that the widest portion is in area 4-5, but the width is somewhat variable. The border of the wing is blue-green to lower tail then olive at the anal angle. Tails rather short and sharply tapering, upper 4 mm., lower 3.5 mm. *Underside.* Although the dark pattern is essentially similar to that of *kheili*, the black marks are finer and the satiny bars less obvious due to an overall darker more brownish tone; this applies to both wings.

This general description is based on the type and a paratype which came from the "Gold Coast, Gambaga, near the Volta River". (Pl. 5, figs. 41, 42.)

*Variation.* An interesting male specimen which would appear to be a variant comes from the Boar area of the Central African Republic. It differs from the nominate form in having a much bolder pattern of blue spots on the upperside of the fore wing, with indications of additional spots in 1b; on the hind wing the postdiscal blue patch is wider throughout, especially in 2-4; the submarginal spots are bolder and the border is wider. On the underside, the pattern is bolder, the fore wing discal and postdiscal spots more defined and the basal black marks stronger. The hind wing pattern is also bolder giving the whole underside a "spotted" appearance. (Pl. 5, fig. 46.) More material from this area may show the characters to be constant and the aggregate may constitute a good subspecies.

Range: The nominate form is known from the Volta River area and Kumasi of the Ghana Republic (Gold Coast) and extends eastward into Nigeria, N.E. of Enugu. (Map 3).

*Charaxes mafuga* sp. n.

(Pl. 5, figs. 44, 45, Text-fig. 9 [aedeagus])

*Charaxes cedreatis vetula* Rothschild; Jackson, 1957 : 66.

This insect is represented by a long series of males taken in the high rain forests of Mafuga-Rutenga, 7,000-8,500 ft., Kigezi district of Uganda.

Its true position has remained a puzzle; no authentic females can be associated with it. On the evidence of one very battered female, identifiable as *vetula* Rothschild, taken in the Mafuga area, Jackson associated it with these males (tentatively, it is true) but he placed the males to *cedreatis vetula* Rothschild. However, these Mafuga males do not agree with males of *cedreatis* which Jackson placed to *cedreatis vetula* of the Geita area, Tanzania, nor with *cedreatis* males (*lutacea* Rothschild) from northern Angola, or elsewhere. I have already shown that *lutacea* males are variable, above and below and have expressed the opinion that *cedreatis vetula* cannot be upheld as a subspecies, because the form *vetula* crops up here and there within the range of the species, from Nigeria to N.W. Kenya.

There is a superficial resemblance on the upper side of the Mafuga insect and *C. kheili* Staudinger of the savanna country to the north of the Central African Republic, in the Njam-Njam country. (Cf. Pl. 5, fig. 38). The habitats of the two are thus totally different. The shape of the two are unlike, *kheili* having a more pointed acuminate fore wing. No significant difference can be noted in the genitalia according to Bennett.

It seems advisable to consider the Mafuga insect distinct; it is certainly not conspecific with *cedreatis* (male *lutacea*).

MALE. Fore wing length 44-46 mm. Shape of fore wing broad and slightly incised at 3-4 on outer edge though the tornal angle projects slightly at vein 2. *Upperside.* Ground colour blue-black with a slight overall greeny tinge to the hind wing. Fore wing with an obscure blue spot at end of cell followed by two distinct blue spots sub-basal in 5-6 the upper one large; three subapical spots in a row followed by a complete row of less distinct blue postdiscal spots, largest and double in 1b; margin with distinct glaucous marks, double at tornus. Hind wing with a row of postdiscal greenish contiguous lunules from above anal angle to 5; complete row of submarginal linear marks bluish green, whiter at upper angle, distinct, double at anal angle; marginal border dark maroon above upper tail then olive to anal angle; edge black. Tails rather short, upper 4 mm. lower 5 mm. black-edged, with greenish mid line. *Underside.*

Ground colour sepia-brown, darker in interspaces, with strong satiny bars, quadrate at end of cell, a zigzag line in discal zone, with a more continuous zone in postdiscal zone, widest in subapex and most distinct, almost whitish in 1b opposite and adjoining the strong black tornal mark, with more brownish marks to subapex; margin of wing shaded brownish in the curve but greyish at tornus. Hind wing ground colour slightly stronger brownish but satiny bars strong, especially in sub-base and through the discal line; postdiscal row of ochreous olive and maroon lunules, outlined proximally in black, strongly marked; submarginal row of linear whitish lilac marks strong; marginal border dark reddish to upper tail then olive to anal angle. The strength of the variegated underside pattern depends on the distinctness of the satiny bars.

Holotype male. S.W. UGANDA: Kigezi County, at Rutenga-Mafuga Forest, 7,000 ft., vi. 1951 (*van Someren*). In B.M. (N.H.)

Paratype male. Same data.

The female is not yet known, with certainty.

Range: The species was particularly plentiful in the high rain forests of Mafuga and Rutenga, in Kigezi; and the males came readily to ground bait, particularly excrement of carnivores, less so to banana smeared on tree trunks. (We had not adopted traps as a method of capture in those early days.) (Map 3).

#### SYSTEMATIC LIST

##### *Charaxes virilis* van Someren & Jackson

*Charaxes etheocles* ♀ f. *virilis* Rothschild, 1900. Type locality: "West Africa".

Range: Western aggregate; Ivory Coast, Ghana to Nigeria, Cameroon, Central African Republic, Moyen Congo, C. Congo eastwards to Semliki River and south to Upper Katanga. Eastern aggregate; Uganda, from Budongo Forest in west to Busogo in east to Kenya border (Busia area).

##### *Charaxes kheili* Staudinger

*Charaxes kheili* Staudinger, 1896. Type locality: Central African Republic, Njam-Njam. Range: Central African Republic in Shari-Ubanji River area and possibly north of Bangui.

##### *Charaxes northcotti* Rothschild

*Charaxes northcotti* Rothschild, 1899. Type locality: Ghana, Gambaga. Range: Ghana, Volta River and Kumasi to Nigeria, north-east of Enugu.

##### *Charaxes mafuga* sp. n.

*Charaxes mafuga* sp. n. Type locality: S.W. Uganda, Kigezi County, Rutenga Forest. Range: S.W. Uganda.

#### 4. THE *CHARAXES ETHEOCLES* COMPLEX

The bewildering number of African *Charaxes* with black males exhibiting hardly any or only slight differences, has given rise to a great deal of confusion. Before Rothschild and Jordan (1896-1900) produced their monograph of *Charaxes*, there was little or no evidence supporting the allocation of many of the equally numerous



females with any given males, or vice versa. The confused state confronting them can be gauged by the long list of described males and females under the heading "*Charaxes etheocles*" to which were added many more names, both males and females, as members of the complex.

During the past fifty years some attempt has been made to breed the various "suspected species" from known females. A study of these families has provided evidence that certain males are definitely associated with certain females, and the degree of constancy in this respect, coupled with the constancy of external characters, supported the view that several distinct species were involved in this "complex". Characters of the larvae in various stages and food preference were also noted.

In 1952 an attempt was made to disentangle the muddle, utilizing as evidence the breeding results obtained up to that date, coupled with close field observations relative to distribution, general ecology, etc. (van Someren & Jackson, 1952 and 1957).

Additional data has come to hand during the past decade which necessitates a further modification. Some of the more obvious species in the "complex" have been dealt with previously in the present series of Revisions; many of the names listed by Rothschild as "forms of *etheocles*" have been elevated to specific or subspecific rank.

The present paper deals with *Charaxes etheocles* (Cramer) (sens. str.) on a Pan-African basis. The species ranges from Sierra Leone through the Congo to N.W. Kenya; it also occurs in N. Angola, eastward through Katanga to N.W. Zambia and western Tanzania. It appears to be divisible into reasonably well defined subspecies, based mainly on the characters of the female sex in each aggregate; the males being hardly distinguishable and variable on the underside.

### *Charaxes etheocles* (Cramer)

[*Papilio*] *etheocles* Cramer, 1777 : 34, pl. 119.

*Nymphalis etheocles* Cramer; Godart, 1823 : 355.

*Charaxes etheocles* (Cramer) Thon, 1837 : 74, pl. 37, figs. 547, 548 (♀).

*Charaxes etheocles* (Cramer); Butler, 1869 : 52.

*Charaxes alladinis* Butler; Kirby, 1871 : 269, n. 23 (♀).

*Charaxes etheocles* (Cramer); Trimen, 1891 : 80.

*Charaxes hollandi* Butler, 1893 : 266.

*Charaxes ephyra* ab. *catochrous* Staudinger, 1896 : 218.

*Charaxes etheocles* ♀ f. *regalis* Rothschild, 1900 : 486.

*Charaxes etheocles* ♀ f. *fulgens* Rothschild, 1900 : 487.

Only important relevant references are cited; for further references vide Rothschild & Jordan, 1900 : 481-482, and Bryk, 1939 : 375-542.

### *Charaxes etheocles etheocles* (Cramer)

(Pls. 6, 7; Text-fig. 1 [aedeagus])

REGION I. W. AFRICA, SIERRA LEONE EAST TO CROSS RIVER, NIGERIA.

The type of the species is the female form *etheocles* (Cramer), described from Sierra Leone. No type specimen now exists, but the figure given by Cramer

though not entirely satisfactory, must be taken as representing the white-barred female of Sierra Leone. (Pl. 7, figs. 55, 56. [Photo of original figure].)

**FEMALE.** Fore wing length 35–37 mm. margin of wing slightly incurved at 3–4. *Upperside.* Fore wing spots well separated and complete; a large spot in the cell; discal spots including a dot at base of 4 creamy to 2, larger marks in 1a–1b white, blue-tinged distally; postdiscal spots larger, ochre in colour, extending from subapex to 2; margin with faint indication of greyish marks, most obvious at tornus. Ground colour brownish black with blue tinge at base. Hind wing ground colour brownish black, blacker on border; discal band fairly narrow, almost straight on outer border, more irregular on inner, generally white with slight blue on inner border; tapering rapidly to inner border above anal angle where it crosses the inner fold as a partially separated mark. Submarginal series of linear whitish marks strong; marginal border strongly reddish to lower tail then olive to anal angle; margin black; tails moderately long, upper 6 mm. lower 5 mm., black with red midline.

*Underside.* Ground colour light brown, slightly more rusty on outer border of fore wing; basal black marks fairly strong; pattern of above well marked, white, slightly buffish in subapical area; submarginal ocelli weak except at tornus and area above where the marks are strongly black outlined distally in whitish. Hind wing ground colour slightly more rusty; basal black lines thin; discal white band well represented but narrower, broken towards inner border; postdiscal row of lunules weak in upper sector but stronger from mid point to anal angle; submarginal row of linear whitish marks strong; marginal border brick-red to lower tail then olive with black dots to anal angle.

*Variations.* (a) Generally similar to above, but *Upperside* spots and marks in fore wing slightly larger, spots from 2–5 slightly conjoined. Hind wing band slightly wider. *Underside.* Very similar to nominate form, basal fore wing spots and pattern slightly stronger; fore wing spots "rayed". The figure of the type is intermediate between the two. (Pl. 7, fig. 60.)

*Variation.* (b) Basically similar to (a) but *Upperside* fore wing spots white and more strongly conjoined. Hind wing band wider, with slight blue distally on lower half. *Underside.* Basal black marks less strong, but white pattern strong and fusion of fore wing spots clearly indicated. (Pl. 7, fig. 63.)

*Variation.* (c) *Upperside.* Ground colour blacker; pattern of fore wing very similar to (b). *Underside.* Ground colour darker brownish, but pattern more contrasty and stronger; the submarginal dark spots in fore wing complete to subapex; the postdiscal row of lunules in hind wing stronger.

### ♀ form *alladinis* Butler, 1869 : 5

Fore wing length 40–42 mm. *Upperside.* Ground colour purplish blue-black, sometimes rather brownish black. Fore wing with bluish spot toward upper end of cell and a small whitish one beyond, blue spots sub-basal in 2 and 5 in discal line; a row of postdiscal spots, three in line in subapex bluish white or bluish, followed by a slightly larger blue spots in 4–1b. Margin with indistinct glaucous marks, strongest in 1b. Hind wing ground colour as fore, blue spots rather indistinct, one diffuse spot subcostal in discal line; spots in postdiscal line whitish at subcosta but bluish and almost obscured, slightly more whitish toward inner fold; submarginal row of linear whitish marks complete but not strong; marginal row of lunules reddish above upper tail then olive to hind angle which has two black dots; edge black; tails longish, slightly spatulate at end, 5–6 mm. lower 4–5 mm., more pointed at end.

*Underside.* Fore wing ground colour greyish brown, more brownish on the distal border; basal black lines moderately strong; discal and postdiscal spots of above strongly represented, greyish white, bolder, edged proximally in black; the double tornal spot black with pale surround, not very large. Hind wing ground colour more brownish, sub-base with a greyish irregular bar; discal band irregular and much broken at 5–6, but strong on inner fold; postdiscal series of olive and maroon lunules strong and extending from costa to above hind angle; submarginal row of linear whitish to lilac marks complete and accentuated with black marks opposite tails and double at anal angle. (Pl. 7, figs. 58, 59, 61, 62.)

*Variation.* In some specimens the upperside fore wing spots may all be blue and the post-discal spots in the hind wing limited to the two upper ones only, the rest totally obscured.

♀ form *fulgens* Rothschild, 1900 : 487

Fore wing length 40 mm. *Upperside.* Ground colour deeper blue-black, slightly purplish toward base. Pattern as in *alladinis* but all spots of fore wing bolder and usually bluer; the marginal glaucous or greyish lunules more apparent. Hind wing with costal and postdiscal spots larger and more distinct, blue, often with a bronzy tint. *Underside.* Pattern as in *alladinis* but stronger and bolder, the fore wing postdiscal strongly supported distally by bold black marks in the submarginal zone, shaded with grey distally; there is also a large black mark in 1b-1a between discal and postdiscal spots. Hind wing pattern generally as in *alladinis* but much bolder, the postdiscal zigzag line of lunules heavily brownish distally; the submarginal linear lilac to whitish marks strong, followed by the clearer marginal border strongly reddish above upper tail and olive to anal angle with strong black dots at tails and double at anal angle. This form is a transition towards the next. (Pl. 6, figs. 53, 54 (Type).)

♀ form *regalis* Rothschild, 1900 : 486

Fore wing length 40 mm. *Upperside.* Ground colour black with blue sheen toward the base. Pattern very similar to *fulgens*, but those of the discal series strongly developed and reaching to the hind margin; the postdiscal spots often large, all spots except those in 1a-1b orange-ochre, the latter blue. Hind wing slightly darker in ground colour has a well marked blue band made up of six marks in the discal row and two in the postdiscal in the subcosta area. The submarginal row of linear bluish white marks strongly developed and separated from the marginal border by black; marginal border reddish to lower tail then olive to anal angle. Tails 6 and 5 mm. long, reddish, narrowly edged black. *Underside.* The basal area of fore wing greyish brown, with deeper brownish in the discal area and wing margin; the discal and postdiscal light spots strong; the submarginal black spots of tornus and one above strongly outlined distally in greyish. Hind wing ground colour browner than fore except at base; discal band distinct but rather interrupted in mid area; the postdiscal lunules, olive and maroon bold; the submarginal linear marks strong; marginal border reddish to lower tail then olive to anal angle. In some specimens the fore wing spots are not large and may be entirely blue or with a suggestion of bronzy red. The type specimen has exceptionally large spots. The pattern suggests a transition toward the "*etheocles*" pattern. (Pl. 6, figs. 51, 52.)

♂ form *ephyra* Godart, 1824 : 330 (355)

= ♂ form *hollandi* Butler, 1893 : 266

Fore wing length 35 mm. *Upperside.* Ground colour black with little or no sheen. Sub-costal blue spots variable, but usually one at end of cell, one beyond and one or two subapical. Marginal lunules greyish, small or vestigial. Hind wing ground colour black; submarginal whitish spots small or ill-defined; margin may be slightly greenish; extreme edge black with slight white fringe well separated between veins. There may be a suggestion of a wavy greenish line opposite the tail in the postdiscal zone, usually absent. *Underside.* Fore wing ground colour greyish brown with strong satiny bars, one through end of cell, a complete bar through the disc outlined proximally in black, followed by a less marked bar in the postdiscal line; border broadly satiny with a row of dark spots from apex to tornus, of increasing size, blackest at tornus. Basal black marks clear and white-edged. Hind wing ground colour as fore, crossed by a satiny bar in sub-base; a satiny bar through the disc outlined in black proximally; postdiscal olive and maroon lunules strong, outlined in black proximally; submarginal line of pale marks accentuated distally in region of tails with black; marginal border mostly olive with some reddish scales above upper tail. The underside thus has a variegated appearance. (Pl. 6, figs. 49, 50.)

♂ form *carteri* Butler, 1881 : 108

Very similar above to *ephyra* Godart but on underside rather variable, satiny bars less developed and on the whole less variegated and suffused over with a brownish or rusty purplish tint. There is much intergrading. (Pl. 6, figs. 47, 48.)

♂ form *catochrous* Staudinger, 1896 : 218

This form was described from Cameroon as an aberration of *ephyra*. When we wrote our paper on the *etheocles* complex (van Someren & Jackson, 1952) only one male specimen was known from the W. African zone, taken at Lagos, Nigeria. It is now known to occur in Ghana and Ivory Coast and in Liberia. This extension westward increases the range of overlap of this form with *ephyra* and *carteri*. The question thus arises were we justified in considering *catochrous* as a distinct species? Our action received support when in 1955 we bred a large family from a female which gave thirty-three males of the *catochrous* form and females similar to the parent. Two subsequent families also from "*catochrous*" females produced both *carpenteri* and *catochrous* females and male forms *ephyra* (*hollandi*) and *catochrous*. It is true that these families were from females captured at Katera, Uganda, within the range of *Ch. etheocles carpenteri* and not from Cameroon or W. Africa, nevertheless the *catochrous* males are indistinguishable from Cameroon specimens. I am thus of the opinion that *catochrous* must be considered merely a male form of *etheocles*.

Ghana and Ivory Coast specimens:

Fore wing length 35 mm. *Upperside*. Ground colour black; blue spots small, one at upper end of cell, one beyond and two in upper subapex slight whitish; marginal glaucous spots small; fringe narrowly white. Hind wing ground colour as fore; submarginal row of small whitish spots not strong; marginal border greenish. *Underside*. Basal area to discal bar silvery; fore wing bar not strong but proximally lined in black; distal portion of wing browner and post-discal pale spots not strong; margin of wing brownish. Hind wing silvery at basal half crossed by paler sub-basal satiny bar; discal white bar strong, bordered brownish, postdiscal line of olive and maroon lunules strong accentuated proximally in black; marginal border reddish above upper tail greenish to hind angle; submarginal lilac spots not very strong but with black dots at anal angle.

Range: The nominotypical *etheocles* ranges from Sierra Leone and Liberia to Ivory Coast, Ghana and Nigeria, where it merges eastward into a slightly different larger form in Cameroon, Moyen Congo, west of the Congo River. (Map 4).

REGION 2. CAMEROON, CENTRAL AFRICAN REPUBLIC, MOYEN CONGO,  
WESTERN CONGO, KATANGA AND ?N. ANGOLA.

***Charaxes etheocles biinclinata* ssp. n.**

(Pl. 10, figs. 82, 83, 85-87, 89, Pl. 11, figs. 92, 93, 96, 97)

Type locality, Moyen Congo.

This is a mixed aggregate, occupying a very large area, and might be considered a "cline" between nominate *etheocles* of the western area and *ochracea* of the Gabon,

lower Congo area, and it would appear to merge with *carpenteri* in the south-eastern Congo area. In this aggregate, the female forms resemble variations of the nominate race, *alladinis* and *regalis* and the majority of them are larger than those of the nominate *etheocles*.

♀ f. resembling *etheocles*

Fore wing length 42–44 mm. *Upperside*. Ground colour brownish black towards base, blacker on distal two-thirds of wing. Pattern of white spots bold, the spots being well separated, a rounded or triangular spot at upper end of cell, a larger ovoid spot at base of 4 set well in from the two upper spots of the discal line, spots of 3–1b of increasing size, that of 1a a streak; postdiscal series of spots complete from three in line in subapex, spot in 4 set well in, spots in 3–1b following the curve of the wing, spot in 1b touching the mark in discal line. All spots



MAP 4.

creamy in colour. Margin with slight indication of greyish, separated by black at ends on veins. Hind wing ground colour brownish black at base, border wide and blacker; discal band whitish to creamy, of about equal width to 1c then tapering and crossing the inner fold, inner border slightly bluish. Submarginal elongate whitish marks distinct and well spaced; marginal border reddish orange above upper tail, then olive to anal angle. Tails long and slender 6-7 mm. upper, lower 5 mm., black with orange central line. *Underside*. Ground colour greyish brown, darker on the border of fore wing. Pattern bold, basal black marks strong. *Upperside*. Discal and postdiscal spots strongly represented; submarginal row of dark marks complete, strongly black at tornus and space above; a black mark also present in 1b. Hind wing basal area slightly darker brown with a satiny bar in sub-base; discal whitish bar strong, though less wide than above; postdiscal line of olive and maroon lunate marks strong; submarginal row of linear whitish marks strong; marginal border reddish to mid tails, then olive to anal angle. (Pl. 10, figs. 82, 86.)

Holotype female. MOYEN CONGO: Kelle, x.1962 (*Jackson*).

*Variation*. (a) Very similar to above. *Upperside*. Ground colour more strongly black; fore wing spots smaller, and ochre in colour. Hind wing band wide at costa but tapering rapidly the outer border incurved; submarginal linear marks more bluish. *Underside*. Ground colour more uniform greyish brown, satiny bars more diffuse; pattern of above, well-marked in discal line but less strong in postdiscal row, with the adjacent dark marks fading out above 1b. Hind wing discal band creamy white and distinct; the zigzag row of olive and maroon lunules strong; submarginal row of linear pale marks clear; marginal border reddish to upper tail, then olive to anal angle. (Pl. 10, fig. 85.)

*Variations*. (b) *Upperside*. General pattern of fore wing very similar to Pl. 10, fig. 82 but the spots are conjoined by rays. *Underside*. Ground colour more greyish; pattern of above well represented and showing raying for fore wing spots; marginal pale area divided by black veins. Hind wing ground colour more brownish and with a sub-basal satiny bar present but not strong discal creamy white band well represented; the postdiscal lunules not marked in upper half but strong thereafter to anal angle; submarginal whitish line broad but rather diffuse; marginal border reddish orange, outlined in ochre. (Pl. 10, figs. 83, 87.)

*Variations*. (c) *Upperside*. Fore wing ground colour brownish black with purplish tinge on basal area; distal border of wing more brownish. No spot in cell; spot in sub-base 4 very small; two upper spots in discal row quadrate, those in 3-2 crescentic, marks in 1b-1a increasing in size. Postdiscal spots large, of almost equal size, that in 1b in contact with mark in discal row. All spots orange-ochre except those in 1a, 1b discal row which are creamy. Hind wing ground colour as fore wing; the discal band rather irregular on borders, showing a tendency to raying on lower half of outer border, colour creamy with a tinge of purplish colour on inner border in 2-3. Submarginal linear marks creamy with a slight purplish surround; marginal border orange-red to lower tail, then olive to anal angle. *Underside*. Ground colour brownish grey with purplish flush over bases of both wings, more rufous on distal border of fore wing. The black marks at bases well developed, so also the black line on the proximal side of the discal ochreous spots; the postdiscal spots strongly ochreous; the postdiscal spots on fore wing only strong at tornus. Hind wing discal bar ochreous with some indication of breaking up toward the inner fold. Postdiscal lunate marks not strongly shown and suffused over by a rufescent bloom; submarginal pale marks strong; border reddish to lower tail then slightly olive to anal angle. (Pl. 10, fig. 89.)

This variation shows a strong tendency towards *ochracea* Rothschild of Gabon.

♀ form near *regalis* Rothschild.

Fore wing length 43 mm. *Upperside*. Ground colour black with some purplish brown towards the base; pattern of discal and postdiscal spots much smaller than in the nominate *regalis* type (q.v.), particularly in the discal row; all spots ochreous orange except those in 1a-1b

which are blue. Hind wing ground colour blue-black, slightly browner at base; discal bar blue, not so strong as in nominate *regalis* especially as regards the two postdiscal spots at subcosta. The submarginal row of linear marks bluish, not so pronounced; marginal border reddish to lower tail, but olive at anal angle. *Underside*. Ground colour brownish grey, slightly browner on outer border; black basal marks bold. Discal spots greyish, outlined in black proximally; postdiscal spots greyish white in 1b-3 then ochreous to apex; tornal spot and one above strongly black, the dark spots in spaces above hardly visible. Hind wing ground colour slightly browner, sub-base with paler bar; discal band whitish at costa, irregular and fading out at 2 to inner fold; olive and maroon lunules in postdiscal line rather large but not strong except opposite tails; submarginal row of linear marks rather diffuse, but narrowly outlined distally in black; marginal border not very clearcut but reddish to lower tail then olive to anal angle, which has two black dots.

In some examples, the fore wing spots are blue with little orange tinge. There is thus considerable difference between these specimens and nominate *regalis*, q.v.

♀ form near *alladinis* Butler

Very similar to form *alladinis* of the nominate race, but slightly larger; fore wing length 43-45 mm. *Upperside*. Ground colour purplish brown-black, slightly blacker on distal half of wing. Spot in cell and in discal line rather obscured, purplish blue; postdiscal spots more distinct and extending from subapex to 1b, upper ones whitish, lower purplish blue. Hind wing with two rather indistinct purplish blue marks subcostal in discal line; postdiscal spots indistinct and purplish blue; submarginal row of whitish linear marks distinct; marginal border reddish to upper tail then olive to anal angle. *Underside*. Ground colour rather dull, uniform greyish brown with rufescent bloom overall. Basal black marks thin; discal row of paler spots hardly visible except in subcosta but outlined proximally in black; postdiscal marks more distinct; tornal black mark distinct. Hind wing almost uniform with only slight indication of discal and postdiscal spots; submarginal row of linear white marks distinct.

The males associated with this aggregate are of two forms which differ mainly on underside characters. They are f. *ephyra*, *carteri* and f. *catochrous*.

The male forms are *ephyra* and *carteri*.

These three forms are hardly separable and have been referred to when dealing with the nominate race.

*Upperside*. Ground colour deep velvety black with an overall blue-green sheen, most pronounced over the disc of the hind wing. Length of fore wing, 33-35 mm. The number of subcostal blue spots variable, there is usually one at the upper part of end of cell, a larger one at the discal line, and sometimes one or two in the subapical area, but these may be absent. Margin with varying degree of glaucous marks. Hind wing sometimes with a trace of a wavy greenish line in the lower postdiscal zone opposite the tails, but more often this is absent; submarginal row of white dots with lilac surround complete; marginal border greenish; edge black, with very slight white fringe between veins. Tails short, rather thin, of about equal length, 3-4 mm. *Underside*. Ground colour rather dark earthy grey-brown with slight purplish flush. A satiny bar present in the discal line, and a satiny V at apex. Basal black dots and lines usually strong and outlined in white; submarginal row of dark subdued marks complete, those at tornus and space above black; margin with dark marks at end of veins. Hind wing ground colour slightly darker than fore, with a strong satiny bar in sub-base, and a stronger one through the disc, rather irregular at lower end but represented at the inner fold by a somewhat triangular whitish mark; postdiscal row of olive and maroon lunules strong, outlined proximally in black; submarginal row of linear white marks clear; marginal border dull greenish with some admixture of red above upper tail then olive to anal angle; usual double black spot at anal angle, and near bases of tails. (Pl. 11, figs. 92, 96.)

♂ form *catochrous* Staudinger

*Upperside.* Ground colour deep velvety black; fore wing subcostal spots variable in size and number, sometimes absent; marginal glaucous marks small and often hardly visible. Hind wing submarginal spots small, bluish or obscured; marginal border narrow, greenish, plainly visible or obscured, olive at anal angle. *Underside.* Pattern essentially as in other forms but bolder, the basal half of the wings silvery to the discal lines, the distal half of the wings brownish; satiny bars strong. In some specimens the contrast is less strong. (Pl. 11, figs. 93, 97.)

Range: south-eastern Nigeria and Cameroon, the Central African Republic and Moyen Congo to the Lower Congo, Kasai and Katanga, where it appears to meet *etheocles carpenteri*. (Map 4).

## REGION 3. GABON AND ADJOINING TERRITORY, LEOPOLD AREA, LOWER CONGO

*Charaxes etheocles ochracea* van Someren & Jackson, 1957

f. *violacea* Rothschild, 1900 : 485.

f. *ochracea* Rothschild, 1900 : 486.

This subspecies is concentrated in a comparatively small area of the total distribution of the species. The female forms of this aggregate exhibit a common character, that of strong purplish admixture with the blackish brown of the ground colour, and that the pattern of spots on fore and hind wing are predominantly ochre-yellow to orange. The first name to be applied to any one of this aggregate was *ochracea* Rothschild, 1900 : 486. We adopted this name to represent the subspecies.

The males associated with this aggregate were named *violacea* Rothschild, 1900, the type coming from Ogowe River, Gabon. It was described as having the upper side violet-blue, but the degree of violet sheen is not constant.

Fore wing length 35 mm. Shape slightly variable in regard to the incurvature on the outer border of the fore wing. *Upperside.* Ground colour deep velvety black; fore wing blue spots variable in size and number, from immaculate to one very small subcostal spot or three visible marks. Marginal marks hardly visible except at hind angle. Hind wing with submarginal series of white to lilac spots small, clearly marked; edge with slight white fringe. *Underside.* Clayish grey-brown at basal half, more brownish with a slight purplish flush beyond; basal marks strong, often heavy; satiny bars not strong; submarginal dark marks strong at tornus and space above. Hind wing basal area as fore wing up to discal line; greyish brown, darker on postdiscal zone where the series of lunate olive and maroon marks are strong; submarginal row of whitish lilac marks strong; marginal border reddish to upper tail, then olive to anal angle.

Lambarene males are colder in tone on the underside. (Pl. 10, figs. 84, 88.)

The females are extremely variable as regards pattern on the upper side.

♀ form *ochracea* Rothschild 1900 : 486

Fore wing length 40-44 mm. (type, 40 mm.) *Upperside.* Ground colour brownish black with a strong purplish tone. Pattern bold; in the discal row there is a large subcostal spot with a slightly smaller one below, the spot at base of 4 is set well in, subsequent marks of increasing size, somewhat angular, mark on 1a, a streak; postdiscal spots large, three subapical in a row,



elongate; spot in 4 set in a little, those of 3-1b larger, than in 1b touching the discal mark in same area. All spots ochreous or orange-ochre, those in 1a-1b slighter paler. Margin of wing with large but diffuse marks, most visible at tornus. Hind wing ground colour as fore, slightly darker on border. Discal band complete, wide at costa and gradually tapering toward the inner fold, colour buffish ochreous with slight purplish tinge to borders; marginal border orange to lower tail then olive to anal angle. *Underside*. Rufous brown strongly flushed with purplish especially at bases of wings. Basal black marks in fore wing well marked, but those of hind wing fine. The discal and postdiscal rows of spots buffish and clearly defined in the discal row, but less clear and ochreous in postdiscal; tornal black mark small, double; with inner black mark in same area distinct. Hind wing discal band buffish, rather irregular toward inner fold, represented at the fold by a triangular pale mark. Postdiscal row of reddish buff lunules pale at upper end but strong toward lower half; submarginal row of linear marks strong; marginal border orange red then olive at anal angle. Tails 6 and 5 mm. long. (Pl. 11, figs. 91, 95.)

*Variation*. (a) *Upperside*. Fore wing spots are large and slightly joined by rays, spots ochreous; marginal marks large and diffuse. Hind wing band ochreous, the outer border irregular and somewhat dentate. Otherwise very similar to type.

*Variation*. (b) *Upperside*. Fore wing spots are smaller, less strongly orange-ochre, the marks in 1a-1b whitish tinged with purplish. The hind wing band narrower and more tapering, whitish, flushed with purplish on outer border. *Underside*. More rufous with purplish flush; the pattern of both wings strong in the discal lines.

*Variation*. (c) *Upperside*. Fore wing spots are large, whitish and buffish tinged with violet in 1b-1b; the hind wing band off-white with strong purplish buff suffusion on outer border which is rather diffuse. *Underside*. Ground colour is darker in the basal areas of both wings, but more greyish on outer half beyond the discal line in fore wing with the postdiscal series of spots not so distinct. The postdiscal row of lunules in the hind wing strong in the lower half.

*Variation*. (d) Ground colour and pattern as in type *ochracea* but all marks in fore and hind wing strongly ochreous. ♀ f. *ochreata* van Someren & Jackson, 1957.

#### ♀ form *seriata* Rothschild, 1900 : 487.

Fore wing length 40 mm. *Upperside*. Ground colour darker than in previously mentioned forms of *ochracea* being brownish black with a strong purplish tone. Discal spots represented by one large at subcosta with a small dot below, marks in 3-2 almost obliterated; postdiscal spots complete and large though not sharply defined, three subapical in line, spots from 4 to 1b increasing in size; all spots ochreous, marginal lunules large but indistinct. Hind wing ground colour as fore, slightly darker in disc; no discal spots, but postdiscal series of indistinct marks are visible; submarginal linear marks strong and buffish white; marginal border strongly developed, orange-red to lower tail, then olive at anal angle; extreme edge black, tails long and slender, upper 6 mm., lower 4 mm., black with central orange streak. *Underside*. Ground colour grey-brown strongly rufescent with a purplish brown flush, especially on the hind wing, border of fore wing more rusty; basal black lines in fore wing strong, but spots in discal line represented by upper ones only; those of the postdiscal series complete but rather suffused over; the tornal black mark moderately strong, accentuated by whitish surround. Hind wing pattern rather suffused over, but sub-basal and discal pale bars visible; the postdiscal line of lunules fairly distinct strongest at lower half; submarginal series of linear marks buffish and well developed, margin reddish to lower tail, olive to anal angle. (Pl. 11, figs. 90, 94.)

*Variation*. (a) *Upperside*. Resembling somewhat nominate *seriata* but fore wing post-discal spots smaller. No suggestion of postdiscal spots in the hind wing. Underside generally darker than in *seriata*.

*Variation*. (b) *Upperside*. Somewhat like (a) but ground colour stronger, more purplish brownish black, the margin of the wing more rusty. The discal spots in fore wing limited to one large subcostal and a dot below, buffish ochre in colour; postdiscal spots large and ochreous complete to 1b, marginal lunules large but diffuse but distinct in 1b. Hind wing without, or with

a very faintly indicated row of postdiscal spots in the hind wing; submarginal linear marks bold, buffish in colour; marginal border strong. Underside with black basal marks in fore wing strong to discal line; rest of pattern partially obliterated by rufous purplish tone to outer border; hind wing pattern rather subdued, but with a darker zone in the discal line, the postdiscal lunules though large, rather hazy in upper half but clearer toward lower end; the submarginal row of linear marks, strong and buffish in colour; marginal border broad, orange-ochre to lower tail, and olive at anal angle.

*Variation.* (c) This variation links the *seriata* group with *ochracea*. *Upperside.* Ground colour purplish brown, rather more rusty on the border of fore wing. The discal spots are well developed and clear to 2, slightly indicated in 1b, whitish or cream in colour; the postdiscal series large and whitish buff extending from subapex to 1a; margin with large, rather diffuse buffish marks contiguous with postdiscal spots. Hind wing ground colour darker in the disc, more blackish, no discal marks, but postdiscal series of spots well defined, buffish white in upper part but ochreous with purplish brown tinge in lower part to above anal angle. Submarginal linear buffish marks strong; marginal border orange-red to lower tail, then olive at anal angle. *Underside.* Ground colour purplish brown, more rusty on outer border with pale margin. Discal buffy spots distinct, but those of the postdiscal row becoming rather faint toward the subapex; tornal black mark double but small. Hind wing pattern rather overshadowed by the overall purplish brown tone; the postdiscal lunules also subdued by the rusty ground; the submarginal linear ochreous marks suffused over in upper half; marginal border orange-red to lower tail, olive at anal angle.

Range: Restricted mainly to the forest areas of Gabon, with a slight extension into Leopold area of S. Congo and northward into the southern corner of Cameroon. There appears to be some intergrading with *biinclinata* in the southern part of the Moyen Congo. (Map 4).

REGION 4. S.W. OF CONGO BASIN, KATANGA, N.W. RHODESIA, UGANDA, S. SUDAN  
AND ADJOINING AREA OF ETHIOPIA, N.W. TANZANIA

*Charaxes etheocles carpenteri* van Someren & Jackson, 1957 : 54.

(Text-figs. 2-4 [Aedeagus])

The eastern aggregate of *etheocles* was recognized as a subspecies by van Someren & Jackson (1957 : 54). We selected as type, the eastern representative of form *alladinis*, to which Poulton had given the name *carpenteri* in 1918, this being the first name to be applied to any member of this aggregate. This form is unfortunately highly variable. The type was taken at Kakindu Hill, south of the Kagera River, in the Bukoba district of Tanzania.

MALES. Although we designated *violacea* Rothschild as the male of this race (van Someren & Jackson, 1957 : 54) this was an error! Form *violacea* Rothschild is now restricted as the male of *etheocles ochracea* of the Gabon area. In our previous paper (1952), we considered that the male form *catochrous* Staudinger with a strong silvery basal area to both wings was the male of a distinct species with only one form of female. This also has been shown to be incorrect. We are confronted with the fact that though all these males resemble each other on the upper surface, within minor limits, the underside may be brownish as in *carteri*, or silvery in the basal areas as in *catochrous*, and there are many intermediates. They can be bred in the

same family. We however designated a male from Mabira Forest, Uganda, as male of *carpenteri* 1957 : 54.

♂ form *carpenteri* van Someren & Jackson, 1957 : 54.

Fore wing length, average, 35 mm. Outer border of wing slightly concave at 3-4. *Upperside*. Ground colour velvety black (may be tinged brownish in very old specimens). Little or no indication of glaucous marks on margin; no blue subcostal spots, or there may be very small dots, one at upper end of cell, a minute dot beyond in discal line, and one or two in subapex. Hind wing ground colour as fore, submarginal whitish spots may be small and distinct or somewhat obscured; marginal border narrow and greenish throughout, or with some olive at anal angle. *Underside*. Ground colour brownish drab, darker brownish on outer border, satiny bars strong, a quadrate mark in cell and a broad satiny bar through the discal zone, outlined proximally in 1b-3 in black, a satiny V mark at apex; basal black lines fine to moderate; submarginal dark marks black at tornus decreasing in size and colour to subapex, slightly ringed in greyish. Hind wing ground colour as fore slightly darker in basal half crossed by a paler satiny bar, a stronger satiny bar through the disc outlined proximally in black; postdiscal zone browner, with postdiscal olive and maroon lunules strongly indicated, finely outlined in black proximally; submarginal pale line irregular and faintly indicated; marginal border reddish to upper tail then olive to anal angle with black dots between tails, double at anal angle. Tails short, somewhat stumpy, 4 and 3 mm.

*Variation*. (a) *Upperside*. Fore wing margin with distinct glaucous lunules. Submarginal white spot and border distinct. *Underside*. The whole more uniform greyish brown, slightly browner on the border of fore wing and on disc of hind wing; satiny bars more diffuse so that in side light the whole surface has a glazed appearance, but the black marks may be strong. The postdiscal line of wavy lunules almost obscured except toward the anal angle, the submarginal linear pale marks complete but indistinct; but the marginal reddish and olive border is strong. (Pl. 8, fig. 69.)

*Variation*. (b) *Upperside*. Differs little from the nominate, except that the fore wing subcostal spot in discal line is distinct, the postdiscal a mere dot. *Underside*. Pattern is however, strong and in side light the satiny bars show up strongly as they do in the nominate, suggestive of an intermediate stage towards *f. catochrous*.

♀ form *carpenteri* Poulton, 1918 : lxxxii

Fore wing length 43 mm. *Upperside*. Ground colour of fore wing brownish black at base, blacker on the distal half, with a slight purplish sheen. Pattern not strongly marked, in the discal line are two spots, upper one whitish and large, lower small, no spot in 4, spots in 3-2 whitish, rest greenish blue. Submarginal linear white marks well developed; marginal border two whitish, spot in 4 set in, that in 3 slightly in, that in 2 slightly out and crescentic in shape, spots in 1a-1b purplish blue. Margin with diffuse glaucous lunules. Hind wing ground colour black with strong greenish blue sheen in disc. No discal marks; but postdiscal spots extending from costa in an irregular line to short of the inner fold where there is a pale mark, upper spots whitish, rest greenish blue. Submarginal linear white marks well developed; marginal border a mixture of greenish and orange scales to lower tail then olive to anal angle. Tails longish, thin, 7 and 5 mm. *Underside*. Ground colour greyish brown with slight rufous bloom; satiny bars slight in discal zone, slightly stronger in postdiscal line; basal black marks thin; tornal mark and one above black, with black marks more proximal in same spaces, with white mark in between. Hind wing ground colour as fore, basal black marks very thin; satiny bars very faint, only visible in side light; postdiscal line of lunule marks rather angled in upper part and not strong, but more marked toward the inner fold above the anal angle. Submarginal linear buffish marks present but rather weak; marginal border orange-red to between tails, then olive to anal angle.

*Variation.* (a) *Upperside.* Very similar to the type but fore wing spots smaller and limited in the discal line; those of the postdiscal series extending to 1a; hind wing with postdiscal series of greenish spots clear in upper part but obscured in lower. A faint indication of a spot in discal line at costa. (Pl. 9, fig. 75.)

*Variation.* (b) *Upperside.* Discal spots well represented with an extra dot at sub-base of 4, the upper spots bluish, those faintly indicated in 1b and 2 deeper blue to purplish; the postdiscal series complete, double in 1b and a trace of spots in 1a, upper marks bluish white, lower stronger blue. Hind wing with complete row of postdiscal spots and a faint indication of marks in upper discal line; submarginal linear marks strong. *Underside.* As in (a) as regards ground colour, but basal black marks stronger; pattern of upperside more clearly represented. The hind wing with rusty flush overall rather obliterating the pattern except at lower end of postdiscal line. (Pl. 9, fig. 73.)

*Variation.* (c) *Upperside.* Very like (b) but mid-discal spots larger and white; postdiscal spots complete to 1b, bluish. Hind wing with a trace of a spot in discal line at costa, the postdiscal spots complete to 1b, large spot in upper end, bluish. *Underside.* Darker greyish brown especially over hind wing, the fore wing pattern stronger, but hind wing pattern subdued except for the postdiscal lunules which are strong except at upper end.

*Variation.* (d) *Upperside.* An interesting variation in which there is a large blue spot in upper part at end of cell; the discal spots large with an extra spot at sub-base 4, all these spots white, an obscured blue mark in 1b; postdiscal spots small and bluish, the mark in 1b elongate and set out toward tornus. Marginal glaucous marks more distinct. Hind wing with an indication of a blue spot at costa in discal line; postdiscal spots very faint except the second upper one which is white. *Underside.* Ground colour as in (c) but pattern stronger in fore wing with postdiscal spots large and more distinct in the browner outer border. The hind wing ground colour darker, with a satiny sub-basal bar and the discal and postdiscal lines of spots distinct.

The enlarged white discal spots of the fore wing in conjunction with the strong underside pattern seem to indicate an element of the pattern of female form *pallidimacula* in the genetical make-up of this specimen. (Pl. 8, fig. 72.)

*Variation.* (e) Though very battered as a result of being caged for eggs, this specimen exhibits some interesting and unusual features. *Upperside.* Ground colour though brownish black, has a strong greenish tinge over the base of the fore wing and the disc of the hind wing. The fore wing discal spots though comparatively large are greenish blue and subdued; the postdiscal marks are also subdued and large extending from subapex in increasing size to the streak in the hind margin. The hind wing has a much broader postdiscal band than usual made up of large greenish blue marks indented on the outer ends; the submarginal line of whitish marks and the marginal border as usual. *Underside.* As in usual *carpenteri*. (Pl. 9, fig. 74.)

*Variation.* (f) *Upperside.* Fore wing somewhat similar to (e) but postdiscal series of spots more obscured and beyond these a series of blackish marks. Hind wing as in (e) but without any definite postdiscal band, this area being broadly greenish blue. The underside is almost identical to that of (e).

Variations in the females with “*etheocles*” pattern.

♀ form *pallidimacula* van Someren & Jackson, 1957 : 54

Fore wing length 40–42 mm. *Upperside.* Ground colour brownish black, blacker on distal half of wing. Pattern generally similar to that of *etheocles etheocles* but distal and post discal spots white as in the type or very slightly creamy-tinged. A large spot at upper end of cell, two large subcostal spots beyond in discal line, a spot at sub-base 4, set well in, spots from 3 to hind margin of increasing size, that in 1a, a streak. Postdiscal series, three in an oblique line in subapex, spot in 4 set in at an angle, spots from 3 to 1b increasing slightly in size, spot in 1b merging with discal mark. Margin without distinct pale marks except at tornus in 1b. Hind wing with a broad white band of about equal width from costa to cell area then tapering to

above anal angle and crossing the inner fold, borders slightly shaded with blue, mostly opposite tails; submarginal row of linear marks white and strongly developed; marginal border reddish to upper tail then olive to anal angle; tails moderately long, 7 and 5 mm., upper with rounded end, lower pointed. *Underside.* Ground colour greyish brown, slightly darker in interspaces; black line in basal area fine; pattern of above showing up strongly; tornal black marks and smaller one in space above, strong. Hind wing basal area with very fine black lines; discal white bar strong but narrower than above and restricted on the inner border; postdiscal line of lunules, olive and brownish, weak at costa but strong to above anal angle; submarginal linear marks whitish, rather dyslegnic; marginal border reddish to upper tail then olive to anal angle; black dots present at bases of tails, double at anal angle. (Pl. 8, figs. 64, 65.)

*Variation.* (a) *Upperside.* Generally similar to nominate but fore wing spots in discal row slightly larger, the spot in 1b not in contact with that of postdiscal row, spotmark in 1a, a long streak, extended distally. All fore wing spots white. Hind wing discal bar narrower, straighter on the outer border and with very little bluish on inner border. *Underside.* Ground colour paler, but pattern essentially similar.

*Variation.* (b) *Upperside.* Ground colour as in (a); no spot in the fore wing cell; all spots creamy. Hind wing bar strongly bluish with white line in upper discal area. *Underside.* Ground colour rather paler, but pattern clear; hind wing discal band restricted to discal zone. One of many similar specimens bred in family containing f. *carpenteri*. (Pl. 8, fig. 71.)

*Variation.* (c) *Upperside.* Fore wing ground colour brownish black, slightly darker on border. Fore wing discal spots larger slightly conjoined, that in 1b-1a extended distad to postdiscal line, and extended on the proximal side where they are pale bluish; postdiscal spots elongate ovoid; a minute dot in the cell; all marks creamy ochreous. Hind wing band wide slightly restricted at costal end, the band is widest at and extends over the cell area where it is strongly shaded with blue, submarginal linear marks thin; border rather darker maroon above upper tail but olive at anal angle. *Underside.* Ground colour as in previous form but rather rusty on outer border of fore wing, satiny sheen overall; hind wing with darker band proximal to discal white band and in zone carrying the postdiscal olive-ochre and olive lunules which are strong, submarginal row of linear marks strong and border well developed but narrow. (Pl. 8, fig. 66.)

*Variation.* (d) *Upperside.* Ground colour as above, slightly darker on border which has indication of large dark spots; edge with pale marks from tornus to 4. Large spot in cell of fore wing, discal and postdiscal spots large, slightly rayed or conjoined, all marks ochreous. Hind wing blacker on border; discal band wide at costa, tapering to above anal angle and crossing inner fold, creamy white with bluish on inner border. *Underside.* Ground colour as previous form, pattern stronger, fore wing marks creamy; hind wing with brownish zone proximal to discal white band; rest of pattern strong.

There are many intermediates between these variations.

### ♂ form *catochrous* Staudinger, 1896 : 218

*Upperside.* Closely resembles the other forms; the subcostal blue spots of the fore wing may be small yet visible, one in upper part of cell, one in the discal line and two in the subapex, or they may all be wanting. The margin may be without marks or there may be small white marks. On the hind wing the submarginal row of white marks may be punctiform or short linear. *Underside.* Presents a rather striking appearance, the basal two thirds of both wings are a silvery greyish white in which the dark marks show up clearly, in addition, the satiny bars are well developed. The distal third of the fore wing beyond the discal zone is browner and in this the submarginal spots, black at the tornus extend up to the subapex, are ringed in whitish and accentuated proximally in black. On the hind wing the satiny bar in sub-base and that of the discal line show up strongly and in the darker border the postdiscal series of olive and maroon lunules are strong; the submarginal linear white line is sharply defined to above the anal angle; the marginal border, though narrow is red to upper tail then olive to anal angle with black dots between tails double at anal angle. (Pl. 8, figs. 67, 68.)

The underside pattern of all these forms is essentially the same, and though the two extremes look different, both forms and transitionals often occur in one bred family.

Range: The range of this subspecies is from the border of N.W. Kenya with Uganda, from Kakamega-Kabras to Busia in eastern Uganda, westward to the eastern side of the Congo Basin, south to Katanga and the north-eastern side of Tanzania. There is some apparent contact with *biinclinata* in the Kasai-Katanga area. (Map 4).

REGION 5. N.E. KENYA AND EASTERN AREAS OF MT. ELGON, TRANSNZOIA TO MAU, LUMBWA, LONDIANI, SOTIK-MARA, LEMBUS AND RAVINE

*Charaxes etheocles evansi* van Someren & Jackson

(Pl. 9, figs. 76-81, Text-figs. 5-6 [aedeagus])

*Charaxes etheocles* ♀ form *evansi* van Someren & Rogers, 1932.

*Charaxes etheocles evansi* van Someren & Jackson, 1957 : 54.

MALE. *Variation.* (a) Fore wing length 35-36 mm. sometimes smaller. Shape, apex rather pointed, in fore wing. *Upperside.* Ground colour velvety black, slightly tinged brown at base in some examples. Blue spots along subcosta variable, may be minute or strongly represented; marginal glaucous marks hardly visible or may be small but strong at tornus. Hind wing ground colour black; submarginal row of white marks usually distinct; marginal border may be mostly greenish or reddish to upper tail then olive to anal angle. Tails short almost stumpy, of about equal length, 4 mm. *Underside.* The ground colour and strength varies in the same way as we have noted in the females (a). It may be greyish brown, slightly browner in the curve of the fore wing and over the discal portion of the hind wing. Satiny bar of the fore wing moderately strong; basal black marks fine, black lines in interspaces on hind half graduated from heavy in 1b to fine; submarginal dark marks heavy at tornus and space above. Hind wing ground colour as fore wing, satiny sub-basal bar strong; that through the disc strong in upper portion, rather broken in lower; postdiscal olive and maroon lunules strong; submarginal pale line obscured in upper part but clear in lower; marginal border narrowly red above upper tail, olive to anal angle, between row of black marks strong.

*Variation.* (b) *Upperside.* With minute blue marks in subcostal area of fore wing; no marginal spots. *Underside.* Ground colour darker grey brown, with richer brown in interspaces and on the outer border of the fore wing; the satiny bars showing up more strongly in the discal line and inner submargin and at apex. Hind wing with correspondingly strong satiny bars and a darker zone in the postdiscal line.

These variations can be present in one family.

FEMALE. Fore wing length 40-42 mm.; shape slightly more pointed, as a rule, than *etheocles carpenteri*. *Upperside.* Ground colour deep brownish black, rather browner at base of wing. Fore wing pattern strong; a suggestion of a spot toward upper end of cell; subcostal spots in discal line in 6-5 one above the other, spot in 4 set well in, that in 2 slightly out, spots increasing in size to hind margin, that in 1a a streak extending distad. Postdiscal series, three subapical in an oblique line, spot in 4 set well in, that in 3 slightly in, that in 2 slightly out, with a double spot in 1b set in a little, the two rows completely separate and strongly orange-yellow. No marginal marks. Hind wing basal area brownish black, but border blacker and in between a white discal band widest at costa and gradually tapering to above anal angle but not crossing the inner fold, though there represented by a greyish mark borders suffused with greenish blue particularly on the outer border; submarginal row of linear white marks complete; marginal border reddish to upper tail then olive to anal angle. *Underside.* Ground colour pale brownish

grey, more brownish between the two rows of spots representing the upperside pattern, and rusty in the curve of the wing. The basal black marks are fine; the discal and postdiscal spots buffy to ochreous; the spot between the two rows in 1b, black, so also the tornal marks in 1b and space above. There is an overall sheen to the wings. Hind wing ground colour tinged more brownish over the disc; satiny bars present at sub-base; the discal band well represented and white in colour; the postdiscal lunules not strong except in the lower part in the area of the tails where it is greenish olive; the submarginal linear marks fairly strong; the marginal border reddish to upper tail then olive to anal angle.

The whole underside has a rather cold greyish tone. (Pl. 9, figs. 76, 77.)

*Variation.* (a) *Upperside.* Colour and pattern very similar to the nominate form but the fore wing spots slightly larger, those of the discal row large and extended distad so as to almost make contact with the postdiscal spots in the same spaces, 1b-1a, all the spots deep ochreous. Hind wing discal band slightly narrower, bluish on borders; submarginal row of linear white marks tending to fade out opposite tails; marginal border more strongly marked. *Underside.* Much as in nominate form but with the exception of the brownish to rusty border to fore wing, the whole underside of a colder tone with a satiny sheen overall. The pattern of spots whitish to creamy. The hind wing rather browner at base which is crossed by a narrow satiny bar; the outer border of the wing widely satiny. The discal band narrower, the postdiscal row of lunules complete but obscurely represented in the brownish ground; submarginal line of pale marks rather obscured by satiny sheen; marginal border broad and well marked.

*Variation.* (b) *Upperside.* Ground colour of fore wing as in (a); series of discal and postdiscal spots small and widely separated most noticeable in areas 1a-1b. Postdiscal spots small and ill defined. All spots deep ochreous. Hind wing white bar narrow throughout but going through to inner fold; submarginal linear white marks strong. *Underside.* Darker in ground colour especially on the distal half of the wings, the discal band of fore and hind wing whitish and in strong contrast, but the postdiscal spots of fore wing less strongly marked.

*Variation.* (c) *Upperside.* Ground colour of fore wing brownish black at base but strongly suffused over with rufous red on the distal half especially on the border. Discal and postdiscal spots as in (a) strongly orange with very narrow rays joining the two series. Hind wing ground colour brownish black, greyer on the inner fold; discal band comparatively narrow, white with greenish blue on both borders; submarginal linear white marks strong; marginal border narrow but strongly orange red above upper tail, olive to anal angle. *Underside.* The whole surface flushed over with rusty colour especially on border of fore wing and over the hind wing; fore wing discal band ochre, the postdiscal spots orange rather suffused over by the rusty bloom. The tornal black spot and one between spots in 1b strongly black. Hind wing slightly more greyish on distal border, the discal band rusty orange; the postdiscal lunules rusty brown with slight greenish proximally; the submarginal row of linear marks though strong are partially obscured; marginal border narrow but distinctly reddish to upper tail then olive to anal angle.

#### ♀ form *conjuncta* van Someren & Jackson

*Upperside.* Fore wing ground colour as in form (c) slightly more rusty red on border; discal and postdiscal spots orange, completely joined by rusty rays. Hind wing discal band mostly white with faint bluish on borders; submarginal and border as in (c). *Underside.* Rusty suffusion overall; fore wing conjoined marks dull orange, white in 1b. Tornal black marks strong. Hind wing discal band tapering rapidly; dull ochreous. Submarginal and marginal ornamentation bold. (Pl. 9, fig. 78.)

Range: The distribution of *etheocles evansi* is limited to the high country west of the Rift Valley, centred mostly around Mt. Elgon and TransNzoia, but also occurs at Nandi, Lumbwa, Londiani, Mau, Cherangani to Ravine and Tembach. It thus overlaps some of the territory of *Charaxes berkeleyi* ssp. and also that of *Charaxes baileyi*. (Map 4).

## SYSTEMATIC LIST

***Charaxes etheocles etheocles*** (Cramer)

*Charaxes etheocles etheocles* (Cramer) 1777. Type locality, Sierra Leone.

Region 1. ♀ f. *etheocles* & vars.

*alladinis* Butler, 1869. Type locality, Ghana.

*fulgens* Rothschild, 1900.

*regalis* Rothschild, 1900. Type locality, Sierra Leone.

♂ f. *ephyra* Godart, 1823. "West Africa".

*hollandi* Butler, 1893. Type locality, Sierra Leone.

*carteri* Butler, 1881. Type locality, Accra.

*catochrous* Staudinger, 1896. Cameroon.

Range: West Africa, Sierra Leone east to Cross River, Nigeria.

***Charaxes etheocles biinclinata*** ssp. n.

*etheocles biinclinata* ssp. n. Type locality, Moyen Congo.

Region 2. ♀ f. *etheocles* pattern (two vars.).

*ochracea* pattern.

*alladinis* pattern.

*regalis* pattern.

♂ *hollandi* pattern.

*carteri* pattern.

*catochrous* pattern.

Range: Cameroon, Central African Republic, Moyen Congo, western Congo, ?northern Angola, Katanga.

***Charaxes etheocles ochracea*** van Someren & Jackson.

*etheocles ochracea* van Someren & Jackson, 1957. Type locality, Gabon.

(*etheocles* f. *ochracea* Rothschild.)

Region 3. ♀ f. *ochracea* Rothschild, 1900. Type locality, Gabon.

*ochreatea* van Someren & Jackson 1957. Type locality, Gabon.

*alladinis* × *regalis*.

*seriata* Rothschild, 1900. Type locality, Gabon.

♂ f. *violacea* Rothschild, 1900. Type locality, Ogowe Riv., Gabon.

Range: Gabon and adjoining territory Leopold area, lower Congo.

***Charaxes etheocles carpenteri*** van Someren & Jackson

*etheocles carpenteri* van Someren & Jackson, 1957. Type locality, Kakindu

Hill, Kagera, Tanzania.

(*etheocles* f. *carpenteri* Poulton, 1919)



- Region 4. ♀ f. *carpenteri* Poulton, 1919 et vars.  
*pallidimacula* van Someren & Jackson 1957, et vars. Type  
 locality, Jinja, Uganda.  
 ♂ f. *carpenteri* van Someren & Jackson.  
 vars. nr. *carteri* Butler.  
 nr. *catochrous* Staudinger and intermediates.

Range: S.W. of Congo Basin, Katanga and N.W. Rhodesia; Uganda, South Sudan, adjoining area Ethiopia, N.W. Tanzania.

***Charaxes etheocles evansi* van Someren & Jackson**

*etheocles evansi* van Someren & Jackson, 1957. Type locality, Elgon east, TransNzoia.

(*etheocles* f. *evansi* van Someren & Rogers, 1932.)

- Region 5. ♀ f. *evansi* et vars.  
*conjuncta* van Someren & Jackson, 1957.  
 ♂ f. *evansi* (nr. *carteri*) et vars.

Range: Kenya, N.E. and eastern areas of Mt. Elgon, TransNzoia to Mau Lunbwa, Londiani, Sotik-Mara, Lembus and Ravine.

5. ***CHARAXES GRAHAMEI* VAN SOMEREN**

***Charaxes grahamei* sp. n.**

(Pl. 12, Text-figs. 7-8 [aedeagus])

In dealing with these specimens, one is faced with the problem of reaching a decision based upon rather subtle evidence. Any student of the "*etheocles*" group will admit that even where specific identity has been established beyond any doubt, many of the males and females are so superficially alike that they can be misidentified without close examination.

The facts in this particular case are:

1. The males are confusingly like ♂ *etheocles carpenteri* on the upperside; on the underside they resemble, to a certain degree, that of *etheocles* ♂ f. *catochrous* (a form which occurs throughout the various subspecies).

2. The nominate female of *grahamei* superficially resembles members of the group of ♀ *etheocles*, which embraces the forms *alladinis*, *carpenteri*, *seriata* and *regalis* and vars., all of which are "western" with the exception of *carpenteri*, which is the eastern representative of *alladinis*. No known form of *carpenteri* resembles *grahamei*; all of them have the blue bar in the hind wing in the discal line. The form *regalis* of western *etheocles* does however have the bar in the discal line, but this form does not occur in eastern Africa.

3. *Ch. etheocles carpenteri* in its various forms occurs in the forests on the eastern side of Lake Tanganyika, thus occupying the same habitats as *grahamei*. These *carpenteri* ♂ are of normal size.

4. *Charaxes grahamei* is always considerably larger, in both sexes. I do not believe that this is a case of "giantism" amongst an otherwise normal population of *etheocles carpenteri*.

5. The genitalia of *grahamei* and *catochrous* have been dissected by T. G. Howarth. They differ considerably (*vide* Text-figs. 2-4, 7-8).

On this evidence, I am satisfied that *grahamei* cannot be considered a "form" of *etheocles carpenteri*, nor yet a subspecies of *etheocles*. The material examined consists of nine males and eight females, all from the Mukuyu-Muhimo forests of the Kigoma district, north-east of Lake Tanganyika.

**MALE.** Fore wing length 40 mm. (average 39 mm.) base to apex; 29 mm. along hind portion of wing from base to end of vein 1, (average 28 mm.). Comparable figures for *etheocles carpenteri*, 34-35 mm. and 27 mm. Shape as in *etheocles* but costa slightly more curved; curve on outer margin appears stronger because of projecting ternal angle. Margin of hind wing more serrate than *etheocles carpenteri*. *Upperside.* Ground colour deep velvety black, margin of fore wing with very small internervular glaucous marks, double at ternal angle; edge with very slight white fringe. Blue marks small, limited to one beyond end of cell in discal line; (in some specimens there is a minute dot at upper end of cell, a slightly larger spot beyond and a minute subcostal spot at subapex). Hind wing ground colour velvety black, slightly greyish on inner fold; submarginal row of white spots, slightly blue distally, very distinct but well spaced; marginal border narrow, greenish lunules indistinct except toward anal angle; margin black. Tails rather short, 5 and 3 mm., black-edged with white mid line. *Underside.* Fore wing ground colour silvery greyish, with rather strong satiny sheen; slightly brownish in interspace between discal and postdiscal zones and on outer border; basal black spots and lines distinct but not heavy; wavy black line between discal and submarginal zone distinct up to 2 then fading out but with distinct black spot in 1b; submarginal marks faint but strong and black at tornus. Hind wing ground colour strong silvery grey up to discal line with a whitish zone in this area; border slightly browner; postdiscal row of lunules silvery greenish and brownish, outlined proximally in black, strong from costa to above anal angle; submarginal row of whitish linear marks complete and accentuated by black marks in region of tails, double at anal angle; marginal border reddish above upper tail then greenish to anal angle. (Pl. 12, figs. 98, 99 type.)

A slight variant may exhibit a stronger brownish tone to the distal halves of both wings and a slightly stronger pattern, especially on the hind wing on the underside.

The nominate female of *grahamei* is a blue-patterned form which resembles somewhat the form *regalis* of *etheocles*.

**FEMALE.** Fore wing length 42 mm. *Upperside.* Ground colour blue-black with a tinge of purplish and a blue sheen over basal half; discal row of spots purplish blue and complete from the subcosta to hind margin, the spot in 4 minute but the rest increasing in size to the streak in 1a on the hind margin; postdiscal spots complete, three subapical in a row, rather whitish, the remainder bluish to purplish blue, spot in 2-3 following the contour of the wing but that in 1b set in a little. Margin with faint indication of glaucous marks, double and more visible at tornus; fringe narrowly white between veins. Hind wing ground colour blue-black with strong blue sheen at basal half, distal border blacker. Discal band blue with slight greenish sheen, inner border straight, spot at costa more whitish; a discreet spot at subcosta in the postdiscal line; band widest at 6-7 then tapering toward the hind angle but not crossing the inner fold; submarginal row of linear white marks strong; marginal border strongly orange-red to lower tail then olive to anal angle. Tails long, 8 and 6 mm., black with reddish mid line. Margin of wing black with fine white fringe, and slightly dentate. *Underside.* As in the male, the underside is silvery grey with a slight brownish tinge to outer border of fore wing, and to a lesser degree in the disco-postdiscal interspace; the whole surface has a satiny sheen so that the usual satiny bars are obscured. The black lines in the basal area to discal line very fine; the discal and postdiscal rows of whiter spots not strongly defined; the usual submarginal dark spots absent except for the double spot in 1b which is black and strong as are the two spots in 1a-1b more proximad in postdiscal line. Hind wing black lines in basal area very fine; discal bar only slightly indicated; the postdiscal wavy line of greyish green and maroon lunules rather lost in

the greyish ground except those above the anal angle; marginal border reddish to base of upper tail, then olive-grey to anal angle, the inner black marks small. (Pl. 12, figs. 100, 101, type.)

Holotype male. TANZANIA: Kigoma District in Mukuyu Forest, 1964 (Major I. Grahame). To be deposited in B.M. (N.H.).

Allotype female. Same locality, 1965 (Major I. Grahame).

A slight variant has the discal and postdiscal spots in the fore wing slightly larger; the marginal glaucous marks larger. On the hind wing the blue bar is not so broad and the upper spots in the postdiscal line are free. Otherwise the insect is very like the type. The underside is silvery greyish with the pattern obscured.

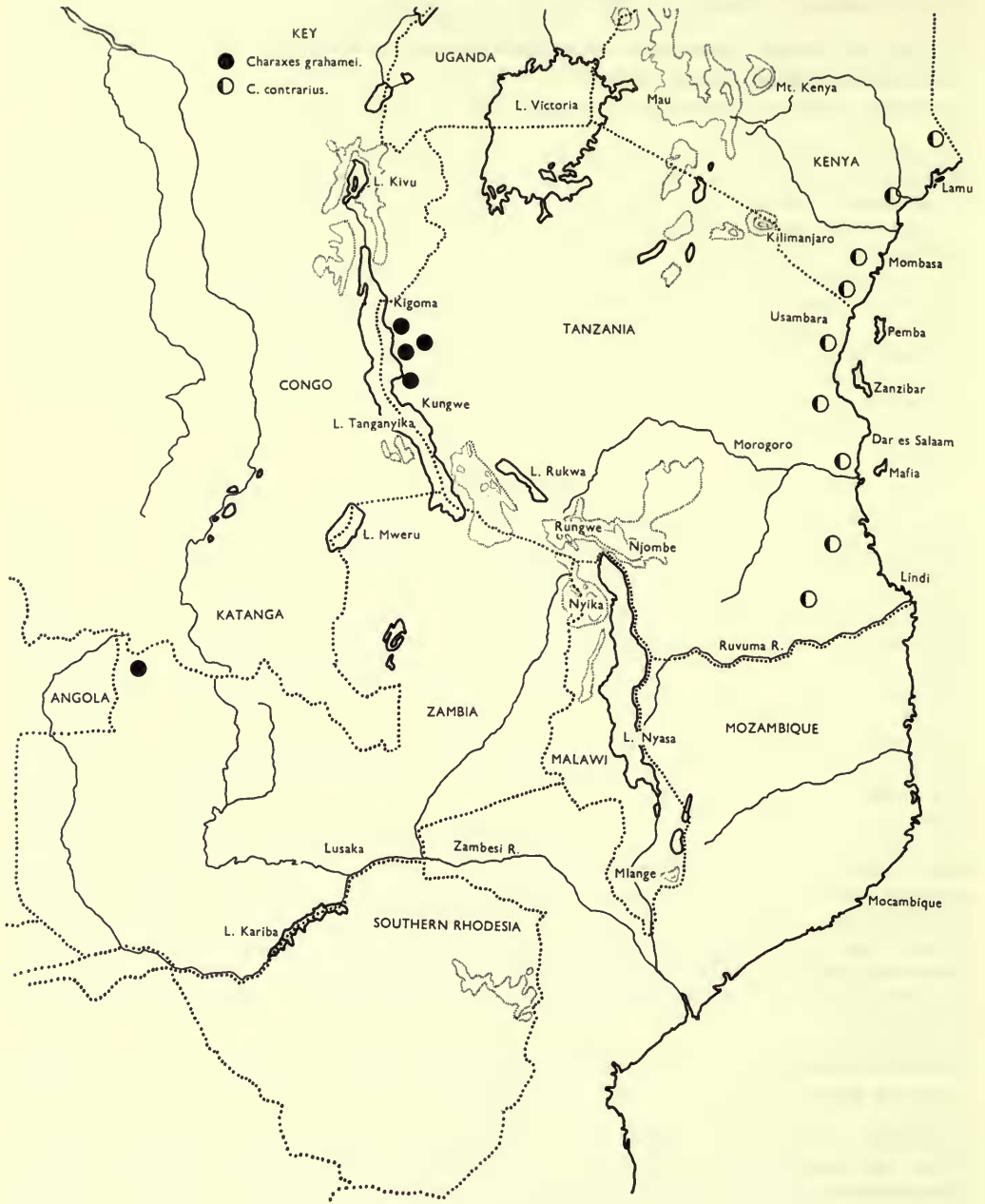
*Variation. Upperside.* Well-marked, with large fore wing discal and postdiscal blue spots, the lower marks in the discal line enlarged and extended distad and almost conjoined to the spots in the postdiscal row by rays and blue scaling; there is an extra blue spot in 1a in the postdiscal row. The hind wing blue band is strongly blue in the discal line with slight purple tinge in postdiscal line in 5-6. *Underside.* Silvery grey with a brownish tinge on the border of the fore wing which offsets the whitish spots of the postdiscal row. The hind wing has a stronger pattern than the type but the ground colour is silvery grey. (Pl. 12, figs. 104, 105.)

#### ♀ form *lacteata* forma n.

This interesting form exhibits the general pattern of female "*etheocles*", i.e. the fore and hind wing light areas are white instead of blue. Fore wing length 42 mm. *Upperside.* Ground colour black, slightly brownish in the basal area. There is a small white dot at upper end of cell; the spots in the discal row strong and increase in size from the costa to the hind margin, those in 1a-2 extended distad and fused with the postdiscal spots in these areas; the two upper postdiscal spots in the subapex are large, the third one smaller followed by spots of increasing size to 2. All these spots are creamy white. Marginal marks are indistinct, whitish but more distinct at tornal angle in 1b. Hind wing brownish black at base, black along the border. The discal band is very broad, extending from the costa to 3 then tapering to the inner fold above the anal angle, colour creamy with some bluish scaling on the inner border and more strongly bluish on the lower half of the outer border. Submarginal row of linear white marks strong; marginal border ochre-red to base of lower tail then olive to anal angle; edge black with slight white fringe between tails; tails moderately long upper 7 mm., lower 5 mm. *Underside.* Fore wing ground colour light brownish grey, slightly more brownish between discal and postdiscal zones and on the outer border. Basal black marks not heavy but discal and postdiscal spots clear and whitish; submarginal dark marks strong at tornus and area above. Hind wing basal area light brownish grey followed by a more brownish bar on proximal side of the well marked discal creamy band; the postdiscal row of lunules brownish slightly greenish ochre above anal angle; submarginal linear white marks strong, with usual black dots toward anal angle; marginal border reddish to base of upper tail then olive to anal angle. (Pl. 12, figs. 102, 103, type.)

Holotype female. TANZANIA: Kigoma district, Mukuyu Forest, 1965. Presented to the B.M. (N.H.) by Major Iain Grahame.

*Variation. Upperside.* Ground colour of fore wing with rather more purplish blue sheen; discal and postdiscal spots arranged as in nominate form but less fused in hind area 1a-2; where spots are tinged with violet-blue, others creamy white. Hind wing discal band broad, rather irregular on outer border, white, with some bluish on lower half of outer border. Marginal border as in nominate. *Underside.* Ground colour greyish brown with a slight overall rusty ochre tinge; the fore wing spots of both series ochre; only one black spot at tornus with pale surround. Hind wing ground colour as fore wing, the discal band rather suffused over with greyish but whiter in subcostal area; row of lunules in postdiscal zone only slightly indicated;



MAP 5.

submarginal linear marks subdued; marginal border obscured, dull reddish to upper tail then olive to anal angle.

Range. This species is found in the forests of the Kigoma district, north-east of Lake Tanganyika, extending southward to the forest of Kungwe Mt. in the Mpanda district.

It is to be noted that *Charaxes etheocles carpenteri* also occurs within this range, the male forms *carpenteri* and *catochrous* having been taken in considerable numbers. (Maps 4, 5).

## 6. *CHARAXES CONTRARIUS* WEYMER AND *C. PETERSI* SP. N.

### *Charaxes contrarius* Weymer

(Pl. 13, Text-figs. 27, 28 [aedeagus])

*Charaxes contrarius* Weymer, 1907 : 44.

*Charaxes subargentea* van Someren & Rogers, 1932 : 167.

*Charaxes catochrous contrarius* Weymer; van Someren & Jackson, 1952 : 279.

When I described *Charaxes subargentea* in 1932, I did so on the assurance of the late Dr. Karl Jordan that the species had not been described previously, but we had both overlooked Weymer's *contrarius*, published in 1907. The subsequent association of *contrarius* with *catochrous* by van Someren & Jackson in 1952 was most unfortunate, for *catochrous* is but a male form of *etheocles* (vide *Ch. etheocles* (Cramer) p. 99). The differences between *catochrous* and *contrarius* were clearly set out by us then; beyond the somewhat silvery underside exhibited by both, there is no real resemblance between the two. No subspecies of *etheocles* is known to occur within a thousand miles of the range of *contrarius*, the intervening country being unsuitable to *etheocles*.

The recently described *Charaxes martini* van Someren, 1965, from southern Malawi, may be related to *contrarius*, but insufficient material, especially authentic females of this southern insect, precludes any definite decision on this point.

MALE. Fore wing length 30–40 mm. Shape incurved on outer border at 3–4, apex falcate, thus very like *Charaxes viola kirki*. *Upperside*. Ground colour blue-black with strong blue sheen at base of costa. Blue spots in subcostal region slightly variable in number and size, but there is usually a spot at the upper part of end of cell, one large spot with a small one below in the discal line, two blue spots in the subapex; margin with distinct glaucous lunules, often strong, and with a white streak in centre of each. Hind wing ground colour blue-black, greyer on the inner fold; a slight greenish sheen sometimes present over lower part of disc sometimes represented by an indistinct wavy greenish line opposite tails; submarginal row of short linear white marks distinct; marginal border with maroon lunules outlined in olive, then olive to anal angle usually strong, but may be obscured, edge black, tails long, of about equal length, 5 mm., black with central olive-red streak. *Underside*. Fore wing ground colour silvery greyish to discal line, slightly browner beyond to the postdiscal series of greyish spots, outlined proximally in areas 1a–6 in blackish, followed by the submarginal row of darker diffuse marks which are black in 1b at the tornus. Basal black marks well defined but thin. Hind wing basal area silvery, more whitish toward the inner fold; basal black lines thin; ground colour more tinged with brownish in the postdiscal line which has conspicuous olive and maroon lunules accentuated proximally in black; submarginal row of linear marks rather broad in the type but usually well

defined and outlined distally in black, particularly in region of tails; border brick-red above upper tail then olive to anal angle. (Pl. 13, figs. 106, 107, type.)

*Variations.* *Upperside.* The size and number of blue spots on the fore wing reduced and the marginal lunules smaller. On the hind wing the submarginal spots are small and partially obscured while the marginal border is narrow, broken and mainly greenish. *Underside.* The fore wing distal pattern is stronger while on the hind wing, the band carrying the postdiscal lunules is strongly brownish; the submarginal linear pale marks continuous and not interrupted; the marginal border is strongly reddish above upper tail then olive to anal angle. Pl. 13, fig. 108.

*Female.* There are two distinct patterns of female: (a) those with an "etheocles-like" pattern, and (b) those with a "rosae-like" pattern. The former predominates.

(a) ♀ form *contrarius*, nominate form

Size rather variable, fore wing length 35–42 mm., average 38 mm. In shape the fore wing may be strongly falcate (as in Pl. 13, fig. 111) or the outer margin may be less incurved at 3–4 as in the majority. *Upperside.* Ground colour blue-black or slightly brownish black, with blue sheen towards the base of fore wing. There may be a white spot at upper angle of end of cell, more often missing, seldom large; the discal row of spots as follows: two subcostal, the upper large, quadrate-elongate, usually no spot sub-base in 4, but when present is often large; the spots from 3 to hind margin increasing in size, the increase usually on the distal end, these marks are usually white. The spots in the postdiscal row are three subapical in a row of about equal size, spot in 4, sometimes missing, is set in, those of 3 to 2 may be free or slightly joined to discal mark in same area, that of 1b fused with discal mark. Margin with no marks as a rule but may be very faintly indicated at tornus. Hind wing basal area blue- or brownish black, slightly greyer in the inner fold, border black; discal white band broad, commencing at costa and widening opposite cell, then gradually diminishing and tapering to above the anal and crossing the inner fold; the band may be slightly blue-tinged on borders from mid point to anal angle; the submarginal line of linear bluish white marks distinct and well separated; border reddish to upper tail, then olive to anal angle; margin black. Tails long and thin, upper 8 mm., lower 5–6 mm., black with reddish or olive mid line. The fore wing white discal bar is the main feature of the wing and may widen abruptly from 3 to hind margin. (Pl. 13, figs. 109–112.)

*Underside.* The ground colour in all these forms is silvery greyish, slightly tinged with brownish in the curve of the fore wing. The basal black lines are fine but distinct; the discal bars are whitish, the upper postdiscal spots buffish; the submarginal dark marks strongly represented in the tornus at 1b and in an area above and are black and touch the postdiscal spots in these areas. The hind wing ground colour is satiny silvery grey with a slight brownish tinge in the base; the discal white band shows up strongly but reduced in width and tapering rapidly toward the inner fold which is crossed above the anal angle. The postdiscal bar of olive and maroon lunules is very strong except toward the costs. The border is slightly more brownish and the submarginal row of linear white to lilac marks are continuous and strong, accentuated distally by black marks; the marginal border strongly reddish to upper tail, then olive to anal angle.

*Variation.* (a) *Upperside.* The fore wing discal and postdiscal spots in the upper section may be creamy, creamy ochreous or ochreous.

*Variation.* (b) *Upperside.* The upper fore wing spots may be slightly conjoined by rays; the spots are white.

*Variation.* (c) *Upperside.* A rather striking variant in which the ground colour is a deep blue-black; there is a well developed white spot in the fore wing cell; the white marks from 3 to hind margin fully conjoined, the marks in 1a–1b bluish at the ends; the hind wing band, white in the mid area, is strongly bluish on both borders, especially on the proximal border. (Pl. 13, fig. 111.)

*Variation.* (d) *Upperside.* This is an extreme of (b) in which all the wing spots are fused from 5 to 1b, the upper spots larger than usual. The hind wing band is exceptionally broad and expanded proximally and strongly blue on the inner border.

(b) form *conjugens* forma n.

(Pl. 13, fig. 110)

♀ form *rosae* pattern (Pl. 13, fig. 112)

Size rather variable, fore wing length 35–44 mm. Shape similar to other forms. *Upperside.* Ground colour of fore wing brownish black, sometimes with a slight purplish sheen at base. The conspicuous white curved band commences as a white spot at the upper part of the cell (it is of interest that a spot in the cell is unusual in the nominate form) which is continuous with a larger triangular mark beyond at base of 4, and this, with a larger triangular mark at base of 3, an elongate mark in 2 with obliquely cut proximal end, followed by elongate quadrate mark in 1b and streak in 1a completes the band. The upper discal and postdiscal spots are usually large and free, but may be small. Marginal glaucous or greyish marks hardly visible except at tornus. Hind wing basal area brownish black, greyer on the inner fold. The discal white band commencing at the costa, expands over the mid-region then tapers to the inner border and crosses it above the anal angle as a narrow white mark; the band is mainly white but may have some bluish scaling on the borders especially at the lower half. Border of wing black and broad, the submarginal linear white marks distinct or slightly obscured opposite tails, but here bordered by black distally; marginal border reddish to upper tail then olive to anal angle; margin black; tails long and thin, 8 and 6 mm. long, black edged with olive or whitish mid-line. *Underside.* Ground colour slightly variable silvery greyish or with varying amount of pale brownish suffusion. Fore wing black basal marks thin out distinct; pattern of upperside strongly represented; tornal black mark and one above very strong. Hind wing silvery grey at base, browner on border, the discal band strongly marked but narrower than above and tending to fade out above anal angle, but postdiscal series of olive and maroon lunules strong; submarginal row of linear marks usually strong; with strong black distally especially in region of tails; marginal border reddish above upper tail then olive to anal angle. (Pl. 13, fig. 112.)

*Variation.* An occasional specimen may have on the upperside a fore wing bar of more even width and the white scaling extending onto the costa. The hind wing band however is limited at the costal end to a large free spot in the discal line, and a reduced mark in 5; the lower part of the band strongly flushed with bluish.

Range: Kenya, occurring in the coastal forests and heavy savanna from just north of Lamu in the Mundane range to the Sekoke-Arabuko forest, the Rabai Hills south to the Shimba Hills and the coastal forests at Zombo and Marima Hill in the Kwale district. Tanzania, the lower forests of the Usambara range, and the Pugu forest, south to Lindi. (Maps 4, 5).

*Charaxes petersi* sp. n.

(Pl. 13, figs. 113, 114; Text-fig. 25 [aedeagus])

This interesting new species was first taken by Dr. W. Peters in Liberia at Kitoma, 1,600 ft. in August of 1953, and remained unrecognized until 1965 when Dr. Arthur Rydon made dissections of the genitalia of the type and other specimens. All had genitalia which differed markedly from those of *Charaxes theocles*, which is common in the area. The species was taken subsequently by Monsieur A. Gally in the Ivory Coast at Abidjan; these specimens have similar distinctive genitalia. Unfortunately, all examples are males; the female is not known with certainty.

This species comes within the "*etheocles*" s.l. aggregate, and indeed is very similar in general appearance, especially on the underside, to the *catachrous* form of *etheocles etheocles*, and could easily be mistaken for it.

**MALE.** Fore wing length 30 mm., (type), 29 mm., paratypes. *Upperside.* General appearance very similar to male *etheocles etheocles* (Cramer), deep velvety black with slight greenish sheen at base of the fore wing costa. Fore wing immaculate except for an obscure blue subcostal spot toward end of the cell, a smaller blue spot at base of 6, two bluish white spots at mid 8-7 and a small white subapical dot in 8. Margin with very obscure glaucous lunules and slight white fringe between veins. Hind wing ground colour as fore, slightly browner on inner fold; disc immaculate but submargin with small punctiform white dots, double at anal angle; margin with glaucous lunules, edge black with slight white fringe. Tails short, 4 and 3 mm. long, black with central glaucous streak. *Underside.* General appearance very similar to the *catachrous* form of *etheocles*, but base of fore wing with more pronounced silvery satiny sheen; discal bar silvery edged internally with black crescentic marks; postdiscal lunules silvery, inwardly margined in black and distally with series of rounded dark spots, strongest at tornus, that at hind angle and in 1b, ringed greyish; margin brownish. Hind wing basal area greyish brown with fine wavy black lines in sub-base; discal bar strongly silvery from costa to above anal angle where it crosses the inner fold, bordered distally by a brownish zone; the postdiscal greyish and brownish ocelli well marked; admargin with whitish lunules accentuated distally with black, most apparent in area between tails and at anal angle; margin black with very slight white fringe.

For formation of the aedeagus, *vide* Text-fig. 25, it will be noted that the main "tooth" or spine is extremely large and prominent, and is situated on the ventral or ventro-lateral side of the shaft of the penis.

Holotype male. LIBERIA: Kitoma, 1,600 ft., viii.1953 (*W. Peters*). In B.M. (N.H.).

Paratypes. Same data, in B.M. (N.H.), and one male from IVORY COAST in National Museum, Nairobi, Kenya. Other males from Ivory Coast in coll. Gally.

Range: Liberia, in forested areas at Kitoma; also on the Ivory Coast, in forest at Abidjan. The species has not been bred.

## 7. *CHARAXES BAILEYI* VAN SOMEREN

### *Charaxes baileyi* van Someren

(Pl. 14, Text-figs. 13-14 [aedeagus])

*Charaxes baileyi* van Someren, 1958 : 4.

This insect was referred to very briefly by van Someren & Jackson (1952 : 285). There were two female specimens of uncertain status, one from Ravine, the other from Rongai on the western side of the Rift Valley.

The species was subsequently taken at an intermediate locality, Visoi Gap, by J. H. Bailey. This was a female with a broad blue band on the upperside of the hind wing, similar to the first specimen taken at Ravine. When on a visit to the Visoi area, I was successful in obtaining a few females from which I raised families with sufficient progeny to indicate the constancy of both male and female characters.



Several additional males and females have been secured by Mr. Bailey during the past year or so.

**MALE.** Fore wing length 35–37 mm. with only a very slight inward curve on outer border. *Upperside.* Ground colour intense blue black with slight blue sheen at base; glaucous marginal marks triangular or lunate usually well marked; subcostal blue spots, one minute dot at upper end of cell, a larger spot in discal line, a small dot in upper subapex. Hind wing ground colour intense black with some greenish sheen toward postdiscal zone where there may be the slightest trace of a greenish zigzag bar opposite tails, but usually absent; submarginal row of linear white marks distinct, well separated; marginal border greenish, more olive at anal angle; extreme edge black with slight white fringe. *Underside.* Fore wing ground colour greyish brown, browner in zone between discal and postdiscal lines, more so in slight curve of the wing on outer border, but the satiny sheen is strong over the discal zone and toward the subapex; the pattern is thus rather strong; the submarginal dark spots, ringed in greyish, black at tornus then more brownish to subapex. Hind wing ground colour as fore with a slight olive tinge; sub-basal and discal satiny bars strong; the postdiscal wavy line of lunate marks olive and maroon, outlined proximad in black; submarginal series of pale linear marks well marked. (Pl. 14, figs. 115, 118, holotype.)

There is little variation in the males on the upperside; in the fore wing the subcostal blue spots may be reduced in size and number; on the hind wing the submarginal linear marks may be obscured. On the underside, the pattern may be less strong but the satiny zones are still marked; the postdiscal line may be bronzy. The shape of the hind wing in *baileyi* is more rounded and less pyriform than in *berkeleyi* which flies with it. I selected as the type female of nominate *baileyi*, the form predominating with a broad discal band in the hind wing.

**FEMALE.** Fore wing 38–40 mm. *Upperside.* Ground colour deep blue-black with strong blue sheen at base of wing. There is a suggestion of a blue spot at the upper end of the cell; the discal spots are one large subcostal with a dot below, followed by a small spot sub-basal in 4 set well in, two larger spots in 2 and 3, and a suggestion of blue scaling in 1b; the postdiscal row of spots well marked and blue, three subapical in line, followed by spots in 4–2 slightly larger and set in, the mark in 1a and 1b larger and bluer, that in 1a, a streak; margin with small glaucous marks, largest in 1b at tornus. Hind wing ground colour as forewing; a broad blue band crosses the disc of the wing, represented in subcosta by a free quadrate spot in postdiscal line, the band tapering to the inner fold above the anal angle. Beyond this band a black border carrying the complete series of crescentic blue and white marks, double and more bluish at anal angle; marginal border reddish and green slightly outlined in mauve; extreme edge black with narrow white fringe. Tails rather long, upper 7 mm., lower 5 mm., black edged with reddish median line. *Underside.* Basically similar to that of the male as regards pattern, but the discal and postdiscal spots of upperside are represented by buffish spots and the whole ground colour is paler and browner but the dark spots toward the hind angle are strong, particularly that at the tornal angle. On the hind wing the pattern is subdued in the basal area; the postdiscal line is not strong except opposite the lower tail and above this there is a somewhat quadrate pale mark on the inner fold; the submarginal linear lilac marks are well developed, the marginal border of reddish to upper tail then olive to anal angle is rather narrow. (Pl. 14, figs. 116, 119, allotype.)

There are several *variations* of this form. (a) *Upperside.* The fore wing spots are mainly bluish, the marks in the discal line not extending to the hind margin in 1a–1b, the postdiscal series extending to 1b as a blue streak. The hind wing blue band as in the nominate form, the submarginal spots blue and the marginal border strongly reddish to lower tail then olive to anal angle accentuated proximally in green. *Underside.* Ground colour more rufescent, especially on the outer border of fore wing; the hind wing more rusty, and the postdiscal line of lunules almost entirely reddish.

*Variation.* (b) *Upperside.* Fore wing upper discal spots are white, but strongly blue in 1a–1b, the marks coalescing with the large blue marks in 1a–1b of the postdiscal series; the margin of the wing with diffuse glaucous marks. The hind wing discal blue band broad and

complete to the costa; the submarginal bluish white marks large; the border greenish with a few reddish scales above the upper tail. *Underside*. As the nominate form but discal spots in fore wing from 2—costa white.

*Variation*. (c) *Upperside*. Fore wing spots in the upper sector in both discal and postdiscal rows are small and obscured but those in 1a–1b and slightly in 2 conjoined and strongly blue. The hind wing band broad and complete to costa; the submarginal linear marks strongly blue and in marginal border green, slightly more olive at anal angle. *Underside*. As in nominate form. These forms occur in bred material from the type locality.

*Variation*. (d) Merely a colour variant in which the blue spots and hind wing band of upperside are strongly greenish blue (Mau-Narok.)

### ♀ form *pseudocarpenteri* van Someren, 1958 : 5

This form bears a superficial resemblance to female *f. carpenteri* of *etheocles carpenteri*, but the two do not fly together. The length of fore wing is 40–42 mm. *Upperside*. Ground colour blue-black with purplish brown shading toward the base, sometimes shot with green. The spots in the discal zone are limited to those in subcosta to area 2 and these are white or slightly bluish white; the postdiscal series complete and ending in a streak in 1a, the subapical spots white, the remainder blue. The blue band on the hind wing is limited to the postdiscal zone and extends from the subcosta to just above the anal angle, the mark in 6 is set in so that there is a double kink in the bar; the submarginal linear marks are bold and bluish white; the marginal border reddish above upper tail and olive to anal angle. Tails as in nominate form. *Underside*. Ground colour purplish grey-brown with a golden olive bloom over the base of the fore wing and on the border; the pattern very similar to the nominate form but whitish marks in discal area limited to spots above. Hind wing ground colour as fore but golden olive bloom covers the whole of the disc, but is traversed by satiny bars in sub-base and discal line. Submarginal line of pale marks strong but rather fused in region of upper tail, spots bordered by olive marks distally, double in anal angle; border reddish to upper tail then olive to anal angle. A quadrate whitish grey mark is present at inner fold above the dark postdiscal mark, the rest of the postdiscal lunate marks not strong, reddish olive.

*Variation*. (a) *Upperside*. Similar to typical, but all fore wing spots blue; the postdiscal blue bar in hind wing bordered with bronzy golden scales. (Pl. 14, figs. 117, 120.)

*Variation*. (b) A paratype specimen of this form has the upperside ground colour of fore wing blue-black, slightly bluer toward base; postdiscal spots reduced in number and the postdiscal series present but obscured, the mark in 1a elongate along the hind border. The hind wing ground colour blue-black shaded with purplish brown towards the base; the blue band is limited to the postdiscal area but does not reach the costa; the black border carries a row of linear bluish white marks extending from upper angle to anal angle; the marginal border is a mixture of greenish and red scales to upper tail then olive to anal angle. Tails as in typical form.

**Bionomics:** A full account of the biology of this species can be found in the original description. (1958 : 5) The species lays on *Scutia myrtina* Burm. s.l. (Rhamnaceae). Families bred from ♀ form *baileyi* produce both *baileyi* and ♀ form *pseudocarpenteri*; and *pseudocarpenteri* also produces both forms; variants appear in some families. The males are remarkably constant.

**Range:** So far, this species has only been taken west of the Rift Valley in Kenya at Visoi Gap between Kilombe Hill and Londiani Hill, at Molo and Ravine, at Mau-Narok, and recently on the eastern slopes of Mt. Elgon. Thus there is a considerable overlap with *Charaxes berkeleyi* ssp. and *Charaxes etheocles evansi*. (Map 1).

## SYSTEMATIC LIST

*Charaxes grahamei* sp. n.

*Charaxes grahamei* sp. n. Type locality: Tanzania, Kigoma Dist., Mukuyu Forest.  
Range: Tanzania, Kigoma Dist., N.E. of Lake Tanganyika and southwards to Mpanda Dist., Kungwe Mt.

♀ f. *lacteata* forma n. Type locality: Kigoma Dist., Mukuyu Forest.

*Charaxes contrarius* Weymer

*Charaxes contrarius* Weymer, 1907. Type locality: "German E. Africa". Range: Kenya, coastal forests and heavy savanna from Mundane Range, Lamu to Sekoke to Arabuko Forest, Rabai Hills, Shima Hills, Zombo, Marima Hills, Kwale Dist., Tanzania, Usambara Range and Rugu Forest, south of Lindi.

♀ f. *conjugens* forma n. Type locality: Shimba Hills, Kwale.

*Charaxes petersi* sp. n.

*Charaxes petersi* sp. n. Type locality: Liberia, Kitoma. Range: Liberia and Ivory Coast.

*Charaxes baileyi* van Someren

*Charaxes baileyi* van Someren, 1958. Type locality: Kenya, Visoi Gap. Range: Kenya, west of Rift Valley at Visoi Gap, Kilombe Hill, Molo, Ravine, Mau-Narok and Mt. Elgon.

♀ f. *pseudocarpenteri* van Someren, 1958. Type locality: Kenya, Visoi Gap, Kilombe Hill.

8. *CHARAXES VIOLA* BUTLER AND ITS SUBSPECIES AND FORMS*Charaxes viola* Butler

Butler described this insect as a species in 1865. Subsequently, Rothschild and Jordan (1900) referred to *viola* as a subspecies of *etheocles* (Cramer), 1777. Auri-villius (1925) and subsequent authors followed the general classification advocated by Rothschild.

Van Someren and Rogers (1925 : 42-43) drew attention to certain breeding experiments which seemed to indicate that "*etheocles*", as defined by Rothschild, was an aggregate of several well defined species. This view was upheld and amplified by van Someren and Jackson (1952 : 257-259), and was followed by a tentative division of the group into species, being further amplified by us in 1957. *Charaxes viola* Butler was reinstated to specific rank and several subspecies were recognized. The present revision carries the investigation still further, and is based on a great deal of additional material and data.

This species, throughout its range and in all its racial forms, is an insect of the

savanna country, i.e. "thorn-bush" or "orchard country", light riverine gallery forest, and dry forest areas, thus seldom extending into areas of heavy forest. *Charaxes etheocles* on the other hand, is generally an insect of heavy forest.

If one studies a "Vegetational Map" such as that of UNESCO, 1959, it will be noted that areas of various types of savanna or woodland extend from W. Africa to Abyssinia and Somalia, eastern Africa to Central Africa and to S. Africa north of Lat. 25° with varying degrees of tree coverage; Zones 8, 16, 18, 20, 21-22, and 25. The known ranges of *Charaxes viola* correspond more or less with these areas which are described as: Forest-savanna, mosaic woodland, savanna woodlands, wooded steppe, etc., the main trees being *Acacia*, *Combretum*, *Commiphora*, *Terminalia*, *Brachystygia*, *Albizia*, *Entada* and *Isoberlina*. Many species of some of these genera are food plants of *Charaxes viola*.

This type of habitat being more or less continuous, either as large blocks or even narrow corridors, from west to east and east to south with no natural ecological barriers completely severing the continuity, we find some evidence of merging of the subspecies into which *viola* has been divided. One is thus faced with the problem of deciding which of these races is taxonomically sound, i.e. do they represent restricted or isolated breeding communities or are some bio-ecological strains affected by climatic conditions and restricted food plants, yet exhibiting evidence of considerable genetical control of female forms. There is often a size difference.

On the evidence of the considerable material before me, *Charaxes viola* can be divided into four main groups, based on female forms (1) a western group (W. Africa to Uganda) in which the females conform to a fixed pattern and coloration, with comparative slight variation; (2) a north-eastern group (Ethiopia-Kenya-Tanzania) in which the female pattern remains more or less constant, but the colour varies from white to orange; (3) a central southern group (western Tanzania-Malawi-eastern Zambia-Rhodesia) in which the female is of totally different pattern and colour but in which the white-barred female crops up again, but mostly in the southern parts of its range; (3a) S.W. Africa in which a boldly marked, white-banded ♀ is the only one recorded; (4) a southern Congo (Katanga), western Zambia-Angolan group in which the females are highly polymorphic and polychromatic.

One is led to speculate on what was the ancestral female form. By analogy, one would expect that the original female was somewhat male-like, the first major divergence being the development of discal and postdiscal spots, already present in males, most apparent on the underside. These two series of spots, originally bluish or whitish, became creamy, ochreous or orange; at first completely separated, they became partially united in the lower or hind portion of the fore wing, and in the disc of the hind wing. The appearance of form *phaeus* is difficult to explain, but if one studies the female forms of the polymorphic group 4, the possible development of this form is sensed; the greenish blue basal area present in the male became gradually intensified or became paler blue, the postdiscal spots developing concurrently with some trace of discal spots. If there is any substance in this speculation, one must assume that the polymorphic aggregates are still in a state of flux of evolutionary development, whilst the monomorphic have evolved the more rapidly and achieved stability.

I deliberately avoid the controversial subject of mimicry as an agent in the evolution of *Charaxes viola*; it abounds in pitfalls.

Since this is a taxonomic paper one should be able to define, with some degree of certainty and accuracy, the characters of the subspecies and state their distribution. In the main, these criteria can be fulfilled, but there is some evidence of apparent overlap, even merging, of aggregates to which subspecific names have been applied. There is also a paucity of material and detailed field data from some areas. I prefer, at this juncture to retain the taxa as given in the systematic list.

### *Charaxes viola viola* Butler

(Pl. 15, figs. 121-132)

*Charaxes viola* Butler, 1865 : 627. (Partim) Type female.

*Charaxes ephyra* Feistamel, 1850 : 255 (♂).

*Charaxes viola* Butler, 1876 : 481 (♂).

*Charaxes etheocles viola* Rothschild, 1900 : 488 (♀).

*Charaxes etheocles viola* Aurivillius in Seitz, 1912 : 137.

*Charaxes viola viola* Butler ; van Someren & Jackson, 1952 : 263.

#### GROUP I, AREA I. SENEGAL—N. NIGERIA

Females are monomorphic with only slight variation.

**MALE.** Fore wing length 33 mm., shape falcate. *Upperside.* Ground colour blue-black with greenish sheen especially at base of cell. A blue spot in cell, two blue spots beyond, upper large, lower a mere dot, two subapical bluish white spots, (occasionally only one), or sometimes three, continued in postdiscal line as faint blue dots from 4 to hind angle; margin with strong glaucous lunules increasing in size to tornus, slightly separated by dark veins. Hind wing black, greyer on inner fold, disc immaculate, but in postdiscal zone a wavy bluish green line, most pronounced opposite tails and fading out toward upper angle; submarginal linear marks whitish in upper part, then bluish to anal angle; marginal border greenish ochre with reddish centres, becoming more greenish to lower tail, then olive to anal angle; margin black. Tails rather short, tapering rapidly to a point, upper 4 mm., lower 3 mm. *Underside.* Ground colour greyish drab, slightly more brownish on border, or generally pale earthy brown overall. Fore wing black marks strongest in lower part of basal triangle in 1b; satiny bars faintly indicated in discal line, internally outlined in black especially towards the hind margin; postdiscal line proximally faintly outlined in black; submargin with a series of dark marks from apex to tornus increasing in size and culminating in double black tornal mark. Hind wing with an indication of a pale sub-basal bar and an irregular pale bar in discal line; basal black lines very fine and hardly indicated; postdiscal series of conjoined lunate marks greenish ochre and reddish, outlined in black proximally, extends from costa to above anal angle; submarginal whitish lilac marks not strongly developed; marginal border reddish above upper tail then olive to anal angle, with black central dots double at anal angle. (Pl. 15, figs. 123, 124.)

**FEMALE.** Fore wing length 40 mm., shape falcate, generally narrow, since the length of vein 1 seldom exceeds 24 mm. *Upperside.* Ground colour brownish black, slightly browner on the outer border. All fore wing spots are tawny orange except those in 1a-1b which are pale. Two spots beyond end of cell, usually no spot basad in 4, but those in 3 to hind margin gradually increasing in size, their inner ends rounded, the outer ends continuous with the post-discal but usually with some dark scaling indicating line of junction; postdiscal spots: three ovoid in subapex, spots from 4 to hind margin increasing in size and somewhat quadrate are contiguous with the discal row. Margin with conspicuous though ill-defined tawny orange

lunules, most clear from 4 to 1b. Hind wing basal triangle brownish black, disc of wing with a broad white patch slightly bluish on borders, the band goes through from the costa where it is narrow, then widens and fills the greater part of the disc, then tapers to and crosses the inner fold above the anal angle. The distal dark border is thus narrow, widest in 6-7 but narrowing to anal angle. The submarginal linear or lunate marks are whitish blue, more blue toward anal angle, and conspicuous. Marginal border reddish above upper tail then olive to anal angle, with black marks and double dots at anal angle. Margin black tails long and slender, upper 6-7 mm., lower 5 mm., black edged with ochre-olive mid line. *Underside*. Fore wing ground colour palish grey-brown in basal area, slightly more rusty toward curve of outer border; black marks strongest in lower area 1b and along the inner border of the tawny ochreous discal and postdiscal band, the inner border of the latter with subdued dark spots in submarginal line which become black at tornus at 1b and area above, the former accentuated by a pale lilac surround. Hind wing colour as fore, the basal black lines very thin; the discal band is ochreous, bordered distally by the postdiscal zigzag ochreous and reddish lunules which extend from costa to anal angle. The ground colour of the border is slightly greyish, traversed by the complete row of whitish lunate marks, slightly black lined distally, then strongly black opposite the tails; marginal border rather narrow, reddish above upper tail then olive to anal angle. (Pl. 15, figs. 121, 122.)

*Variation*. (a) *Upperside*. In the fore wing the tawny orange discal and postdiscal spots are conjoined to 5, there being a spot in 4 in discal row; the outer border of wing strongly rufous from apex to hind angle so that the lunules on the margin are fused. *Underside*. As in nominate form.

*Variation*. (b) *Upperside*. Fore wing discal and postdiscal spots well separated from 7-4 then almost separated by black scaling in 3-2. Marginal lunules not very distinct. Hind wing dark border divided into triangles by angular intrusion of the discal white band into it, which almost meet the submarginal row of linear marks. *Underside*. Pale greyish putty colour, with barely indicated black marks, only the tornal black mark distinct. The discal bands only slightly visible and suffused over.

Range: Nominate *viola* extends from Senegal to Togoland and Ghana thence to northern Nigeria and perhaps to Lake Chad, inhabiting the Savanna bush country. I am unable to check the records of *viola* from Atbara, as the specimens appear to have been lost! (Map 6).

### *Charaxes viola picta* van Someren & Jackson

(Pl. 15, figs. 127-130)

*Charaxes etheocles* ♂ f. *picta* Rothschild, 1900 : 483.

*Charaxes etheocles* ♂ f. *picta* Rothschild; Aurivillius, 1912 : 553.

*Charaxes etheocles* ♀ f. *vansomereni* Poulton, 1925 : 553.

*Charaxes etheocles* ♀ f. *illuminata* and f. *splendens* Rousseau-Decelle, 1938 : 161. Locality, Rio Luvna, E. Congo Belge.

*Charaxes viola picta* van Someren & Jackson, 1952 : 263.

GROUP I, AREA 2. S. NIGERIA, CAMEROON, THEN SKIRTING NORTH OF EQUATORIAL FOREST TO E. CONGO, UGANDA, S. SUDAN AND N.W. KENYA

The females are monomorphic with slight variation.

MALE. Fore wing length 33-35 mm. (average 35 mm.), thus larger than the nominate race, and more robust; shape falcate. *Upperside*. Ground colour black with greenish sheen especially over the cell. This race is usually more strongly marked with blue spots than in nominate; a large blue spot in the cell, in discal row beyond, a large subcostal whitish spot with a smaller

below, traces of blue spots in 4-2; postdiscal spots, three in a row in subapex, usually white or with slight ochreous tinge, followed by two to four small blue spots, the lower ones fading out; marginal glaucous lunules broad and strong, separated by dark veins. Hind wing ground colour as fore, greyer on inner fold; disc immaculate, but postdiscal wavy greenish line present in lower half, less clear in 5-6; submarginal bluish white marks complete but often small; marginal border reddish above upper tail, then olive to anal angle which has two black spots. Tails rather short and of equal length 4 mm. *Underside*. Darker than nominate race with black marks at base of fore wing more pronounced, so also the satiny bars, which are bordered in lower half by black; tornal mark strong. Hind wing ground colour slightly more brownish, satiny discal band more distinct; postdiscal ochreous olive and reddish lunules, outlined proximally in black stronger; marginal lunules reddish above upper tail, then olive to anal angle; black dots strong, double at anal angle. (Pl. 15, figs. 127, 128, type.)

*Variation*. (a) *Upperside*. Very similar to typical but with discal and postdiscal blue marks stronger and distinct; the subapical spots ochreous. Hind wing with strong postdiscal wavy green line. *Underside*. More strongly marked.

*Variation*. (b) *Upperside*. A variant in the reverse direction: the subapical spots limited to two small blue dots; the glaucous marginal lunules strong. Hind wing postdiscal greeny line hardly visible; marginal border with hardly and red scaling above upper tail. *Underside*. As in nominate form. (Pl. 15, fig. 129.)

*FEMALE*. *Upperside*. Somewhat similar to nominate *viola* but considerably larger, and, as in that race, the discal band of the hind wing is restricted at the costa but expands over the disc in mid area and lower end. (Pl. 15, fig. 130.)

#### ♀ form *vansomereni* Poulton, 1925 : 553

Fore wing length usually 40-42 mm., shape falcate. *Upperside*. Base of wing brownish shading to black toward the discal band, basal area often with a greenish sheen; distal border blackish. Usually no spot in the cell, but there may be a slight indication of orange scales, two spots beyond the cell, part of the discal series, usually free, as are the three subapical in the postdiscal series; the remaining spots of both series conjoined in varying degrees; all spots tawny orange to orange but those of 1a-1b paler to whitish. Margin of wing with tawny brown lunules separated by dark veins. Hind wing basal area brownish toward costa but distally merging into the bluish white discal patch which is narrowest at the costa but expanded over the mid area then narrows to, then crosses, the inner fold, the borders of the patch tinged with greenish blue scales; the outer border of the wing blackish and wider than in nominate race: submarginal whitish to bluish marks strong; marginal border reddish above upper tail then olive to anal angle which has two black dots. Tails moderately long with rounded ends, upper 8 mm., lower 6 mm., black with olive mid line. Margin of wing black with slight white fringe. *Underside*. Rusty greyish brown ground colour with varying amount of satiny bars from hardly visible to strong especially in the subapex; black lines strongest in the basal area of 1b and on either side of the discal band which varies in distinctness, tornal black marks variable, often strong. Hind wing ground colour as fore wing, black marks fine; discal pale band variable but narrower than patch above, often limited to the discal zone, sometimes diffused over and hardly visible; the postdiscal olive ochreous and reddish lunule marks outlined proximally in black, usually strong; submarginal pale lunule marks strong to moderate; border reddish above upper tail then olive to anal angle, with black dots distinct. (Pl. 15, fig. 131.)

*Variation*. Some indication of variation has been given in the foregoing general description. *Upperside*. A marked variant has the ground colour of the fore wing rusty brown to brownish in the discal line while the outer border is strongly rusty, especially in apical half, so that the marginal lunules are absorbed into the ground colour except at the tornal angle. The discal and postdiscal orange spots are conjoined by rays. The hind wing discal band is strongly suffused over with orange scaling from costa to 5. The whole pattern is suffused over with a golden rusty bloom. (Pl. 15, fig. 132.)

Range: This subspecies occurs in S. Nigeria and Cameroon, then skirts north of the Congo equatorial forest to E. Congo, Uganda, S. Sudan and N.W. Kenya. (Map 6).

*Charaxes viola kirki* Butler

(Pl. 16, figs. 133-137, Text-fig. 29 [aedeagus])

*Charaxes kirki* Butler, 1881 : 105.

*Charaxes etheocles* ♀ f. *kirki* Butler; Rothschild, 1900 : 486.

*Charaxes etheocles* ♀ f. *kirki* Butler; Aurivillius in Seitz, 1912 : 136.

*Charaxes etheocles* ♀ f. *rogersi*, Poulton, 1919 : lxxxii.

*Charaxes etheocles* ♀ f. *albifascia* Poulton, 1926 : 553, 555.

*Charaxes etheocles* ♀ f. *handari* Poulton, 1926 : 553, 555.

*Charaxes viola kirki* Butler; van Someren & Jackson, 1952 : 265.

GROUP 2, AREA I. N. AND CENTRAL TANZANIA AND PARTS OF KENYA

Females of *viola* from most localities in this area are dimorphic on the upperside. Though somewhat similar to female *viola picta* they can readily be distinguished by the form of the hind wing discal band, which is widest at the costa, then tapers strongly to the inner border, above the anal angle, but usually does not cross it.

MALE. Fore wing length 44 mm., averaging slightly larger than *picta*; shape falcate. *Upperside*. Ground colour fore wing blue-black with slight greenish sheen at base and along costa. A large blue spot at upper angle cell end; a large spot and a small dot below beyond cell end; two subapical spots are white or slightly ochreous; glaucous marginal lunules usually large and distinct, increasing in size from apex to tornus. Hind wing velvety black with no green in postdiscal line; submarginal bluish white spots small, often indistinct except in area opposite tails and at anal angle; marginal border a mixture of reddish and green, then green at upper tail, then olive to anal angle. Tails tapering abruptly, of about equal length 5-6 mm. *Underside*. Ground colour ashy grey-brown or brownish grey, rather strongly variegated, the satiny bars and black marks strong. Fore wing with a satiny quadrate mark in cell, a satiny bar through disc and a patch at upper apex; submarginal dark marks often strong especially toward tornus. Hind wing with a sub-basal satiny bar, a rather broken bar through the disc; post-discal zigzag line of olive and maroon lunules strong, outlined proximally in black; marginal border maroon to upper tail then olive to anal angle, strongly marked. (Pl. 16, figs. 136, 137.)

*Variation*. *Upperside*. Some specimens exhibit a reduction in the number of fore wing spots, the number being reduced to two small subapical which may be white or ochreous; the marginal glaucous lunules are obscured. In the hind wing the submarginal spots are only just visible in the tail region; the marginal border in this area is broken up into separate spots; the tails are mostly black. *Underside*. Black marks are reduced and the whole pattern suffused over.

FEMALE. The named female forms with orange fore wing pattern are *kirki*, *albifascia* and *rogersi*. The form with a white fore wing pattern has been named *handari*. These females can be distinguished from *picta* by their darker, blacker ground colour and the form of the hind wing discal band.

♀ form *kirki* Butler, 1881 : 105

Fore wing length 34-38 mm.; shape falcate, not so markedly as in nominate *viola* but more like *picta*. *Upperside*. Ground colour darker, almost black, especially on the hind wing border. Fore wing pattern: an orange spot usually present in the cell, varying in size and clarity; the discal and postdiscal orange spots, except for the two subcostal discal ones and the two upper



subapical, fused together, with occasionally some black scales indicating the line of fusion in areas 5-3. The colour of this band is stronger orange than in *picta*, the lower portion of this band is almost parallel-sided from 3 to hind margin. Marginal lunules rusty to orange, only slightly divided by dark veins. Hind wing ground colour black, slightly greyer on inner fold; discal band widest at costa then tapering rapidly to inner fold above anal angle, but usually not crossing it; the upper or costal portion of the band tinged with orange scaling to about middle of disc; borders very slightly tinged blue; submarginal bluish white marks well separated but distinct; marginal lunules reddish maroon above upper tail then olive to anal angle; edge black, tails longish, upper with rounded end, lower pointed, length 7 and 5 mm. *Underside*. Ground colour fore wing greyish brown, pattern strong; basal black marks well developed; satiny bars distinct, a quadrate mark at end of cell and a triangular patch at upper part of apex; discal and postdiscal light marks here separated, the former pale creamy ochreous, the latter ochre-orange with a pinkish tinge, both outlined in black proximally; submarginal dark marks increasing in size and blackness, strong at tornus and area above, the tornal spot with lilac surround. Hind wing basal area darker chocolate-brown crossed by a sub-basal satiny bar; black marks fine but distinct; discal band whitish, slightly shaded brownish distally and outlined in black proximally; zigzag postdiscal olive and maroon line strong, extending from costa to above anal angle; bordered by a wide greyish brown zone; submarginal row of lilac whitish marks fairly clear, most distinct in region of tails; marginal border reddish above upper tail then olive to anal angle and carrying black dots. (Pl. 16, fig. 135.)

♀ form *albifascia* Poulton, 1926 : 553, 555

*Upperside*. Very similar to *kirki* on fore wing, but discal band of hind wing entirely white. (Pl. 16, fig. 133.)

♀ form *rogersi* Poulton, 1919 : lxxxii

*Upperside*. Generally similar to *kirki*, but both fore and hind wing bands orange or orange tawny though slightly paler on costal portion of hind wing. The ground colour of fore wing more rusty brown at base and on the distal half of the wing, so that the apical portion is almost uniform rusty, thus obliterating the marginal lunules. Submarginal spots of hind wing small, almost obsolete in upper half. *Underside*. Pattern strong, but slightly suffused with an ochreous bloom. (Pl. 16, fig. 134.)

*Variation*. *Upperside*. A boldly marked form in which the ground colour of both wings is more blackish, thus the orange bands of both wings are in strong contrast.

♀ form *handari* Poulton, 1926 : 553, 555

In this form the upperside patterns of fore and hind wings are creamy white or white.

*Variation*. (a) *Upperside*. Ground colour black with slight blue sheen over base of fore wing; two large white spots beyond the end of cell, an equally large spots at base of 4, set well in, spots in 3-1a of gradually increasing size, rounded or straight on inner side, angled on outer, are very slightly bluish on borders; postdiscal spots are, three subapical in a row, spot in 4 set in followed by free spots in 3-2; border of wing with slight indication of glaucous lunules. Hind wing ground colour black, disc crossed by a white band widest at costa then tapering to above upper angle, the borders strongly suffused with blue, especially on the lower half; submarginal bluish white spots distinct; marginal border reddish above upper tail then olive-green to anal angle. *Underside*. Fore wing ground colour greyish brown with some indication of satiny bars; pattern of upper side strongly reproduced and accentuated by black on proximal side of marks; the border of wing slightly darker brown so that the upper marks in the submargin are obscured, but tornal black mark and that in space above accentuated by a whitish surround. Hind wing ground colour more brownish than fore but discal band whitish and strongly indicated

and going through to inner fold above anal angle; postdiscal whitish lilac linear marks strong; border as usual. (Pl. 20, figs. 188, 192.)

*Variation.* (b) *Upperside.* Ground colour of fore wing more brownish at base but with a bluish sheen. A white spot in the cell, discal and postdiscal ones larger than in (a), all spots creamy white.

Hind wing ground colour as fore but outer border blacker; discal band creamy white, widest at costa then tapering, lower half tinged with greenish blue scaling. *Underside.* As in (a) but ground colour paler, and pattern less strong.

Range: N. and Central Tanzania and along its coast to north of the Ruvuma River; extending into Kenya along the coast and inland to Ukambani and Masai country, spreading into the Kikuyu area, Nairobi, Thika, Fort Hall, Sagana and Nyeri. (Map 6).

### *Charaxes viola suk* Carpenter & Jackson

(Pl. 16, figs. 138-144.)

*Charaxes etheocles suk* Carpenter & Jackson, 1950 : 98.

*Charaxes etheocles suk* Carpenter & Jackson; van Someren & Jackson 1952 : 266.

#### GROUP 2, AREA 2. N. AND CENTRAL KENYA

This aggregate comes nearest to *viola kirki*; it is very variable in size but is usually smaller.

**MALE.** Fore wing length 37-40 mm., shape falcate, often strongly. *Upperside.* Ground colour of fore wing black with some green sheen at base and along costa. Pattern: a small blue spot at cell end, two blue spots beyond in discal line, two subapical spots white or slightly ochreous. Glaucous marginal lunules strong; fringe white separated by black veins. Hind wing ground colour black; submarginal white dots most evident in region of tails, double at anal angle; marginal border reddish above upper tail then olive to anal angle. Tails acutely tapering and of about equal length, 4-5 mm. *Underside.* Ground colour fore wing ashy grey-brown with a satiny quadrate mark in the cell, a satiny bar through the disc and a patch in upper half of the apex; basal black marks strong; subapical white marks show through from above; submarginal dark marks complete, becoming black in 2 and at tornus, there is also a black mark in 1b in discal line. Hind wing ground colour slightly browner; a satiny sub-basal bar and a more distinct bar through disc; postdiscal olive and maroon lunules distinct but submarginal pale spots rather obscured; marginal border as above. (Pl. 16, figs. 138, 139.)

In some specimens the underside ground colour is slightly olive-tinged and the pattern is bolder, especially the satiny greyish bars in the fore wing.

#### ♀ form *kirkoides* Carpenter & Jackson, 1950 : 98

A large to medium form very similar to *viola kirki* with upperside basal area of fore wing rather brownish; there may be an orange spot in the cell; the rest of the pattern as in *kirki*. The hind wing band is whitish with some orange scaling mostly over the upper-mid area; it is widest at the costa, tapering to the inner fold. (Pl. 16, fig. 141.)

#### ♀ form *achaemenesopsis* Carpenter & Jackson, 1950 : 99

Variable in size, but usually 33-35 mm. in fore wing length; pattern of fore and hind wing very similar to form *handari* of *viola kirki*; the discal and postdiscal series of fore wing spots white, the band on the hind wing also white with a varying amount of bluish suffusion on the borders.

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CHARAXES

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*C. viola picta*  
One form of

*C. viola daria*  
Three forms

*C. viola chan.*  
One form of

*C. viola suk*  
Three forms

*C. viola kirki*  
Four forms

*C. viola phae*

*C. viola nr. p*  
Only one ♀

*C. viola diver*  
Numerous ♂

*C. viola loanc*  
Numerous ♂

*C. viola brair*  
One form of

*C. viola varic*  
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*C. viola figini*

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An extreme variant has the discal spots in fore wing reduced in size, the lower postdiscal spots suffused over with greyish scaling; the hind wing band is narrowed considerably.

♀ form *intermedia* Carpenter & Jackson, 1950 : 98

*Upperside.* In this form the upper spots of the discal and postdiscal series are orange, but those of 2-1a are whitish; the hind band white. (Pl. 16, fig. 140.)

♀ form *albifascia* Poulton, 1926 : 553

The fore wing pattern and colour as in *kirkoides*; the hind wing band is white with varying amount of bluish on borders. (Pl. 16, fig. 143.)

Range: This aggregate is plentiful in the thorn-bush country of Karamoja, Turkana, Suk and Kara-Suk south to Kamasia and the Baringo area, extending to the Kampi-ya-Moto district north-west of Menengai, Lower Molo River and Visoi. It was taken in considerable numbers on infected, fermenting seed pods of *Cassia* at the foot of Kacheliba Rock, Suk. (Map 6).

The late T. H. E. Jackson was of the opinion that *viola suk* should be sunk as a synonym of *viola kirki*. This however, would ignore certain facts such as: (a) the males of *suk* and *kirki* differ; (b) the white-barred female form *achaemenesopsis* is extremely plentiful, making up half the female population, whereas *handari* of *viola kirki* is the exception in this population; (c) there must therefore be some difference in the genetical make-up of the two races.

It is possible that the two aggregates merge somewhere in the Kedong valley of the Rift, but this does not discount the fact that in *suk* we have a bio-ecological aggregate occupying a large area to the north of the range of *viola kirki*.

Since taxonomic Rules do not provide for any category lower than a subspecies, not even localized genetical forms, I prefer to treat *viola suk* as a subspecies.

*Charaxes viola chanleri* Holland

(Pl. 20, figs. 189-191)

*Charaxes chanleri* Holland, 1895 : 753.

*Charaxes etheocles chanleri* Holland; Rothschild & Jordan, 1900 : 483.

*Charaxes viola chanleri* Holland; van Someren & Jackson, 1952 : 268.

GROUP 2, AREA 3. MT. KENYA AND NJOMBE RANGE TO S. ETHIOPIA

This subspecies belongs to the eastern group of *viola*, having the hind wing band widest at the costa and tapering.

MALE. Fore wing length 34 mm., shape falcate. *Upperside.* Ground colour of fore wing black with greenish sheen at base of cell. Spots: one large blue spot at upper end of cell; two beyond, upper large, lower small, subapical spots two or three white or slightly tinged with ochre; glaucous marginal lunules strong and only narrowly separated by dark veins. Hind wing black with slight trace of greenish wavy line in postdiscal zone opposite tails; submarginal spots suppressed but just visible in lower section; marginal border mostly greenish, with little red, the lunules somewhat triangular, the apices projecting toward the submarginal line and touching it. *Underside.* Ground colour light greyish brown with slight olive tinge.

Fore wing basal black marks strong; discal satiny bars well marked; postdiscal light marks visible, both outlined proximally in black; submarginal dark marks obscured in upper half but strong toward tornus where marks are black. Hind wing slightly browner in colour, the basal black lines thin but discal satiny pale line strong as also the olive-maroon zigzag line; border narrowly red above upper tail then olive to anal angle.

The underside may sometimes be more uniform, the black marks thin but the tornal black marks strong. In the hind wing the discal satiny bar is obscured in the general pale ground. (Pl. 20, fig. 191.)

**FEMALE.** Fore wing length 37–40 mm.; shape falcate. *Upperside.* Ground colour fore wing brownish black at base shading to black at discal band; outer border more brownish, shading to rusty in curve of wing where there is only a slight indication of ends of dark veins. In the discal line there is a small tawny spot at end of cell, then spots in sub-base of 6–5 followed by a spot in 4 set well in, spots in 3 to hind margin increasing in size, ovoid to quadrate in shape; all spots orange-tawny. The postdiscal spots are, three subapical in a row, spot in 4 set well in, spots in 3–2 conjoined with discal marks with some dark scaling indicating line of fusion. Sometimes the orange spots in 4–6 are joined by rays. Hind wing ground colour as fore wing, but darker on the border which is wide: the discal band which is widest at the costa, tapers to the inner fold above the anal angle and is white with some blue, especially on the borders of the lower half; submarginal line of whitish lilac linear marks distinct and complete; border reddish above upper tail then olive to anal angle; margin black with white internervular fringe; tails long, upper 7 mm., lower slightly shorter. *Underside.* Ground colour clay-brown; black basal lines thin; discal and postdiscal bands of above well represented but as separate marks; dark submarginal marks in curve of wing rather indistinct except in lower half where the spots are black with a pale surround, mostly on the distal side. Hind wing slightly darker than fore; satiny sub-basal bar fore wing rather broken; the discal band of above well represented but narrower; postdiscal olive and maroon lunules not very distinct; submarginal row of linear marks, lilac and whitish, distinct and complete; submarginal border reddish above upper tail, then olive to anal angle. (Pl. 20, figs. 189, 190, type.)

*Variation.* *Upperside.* The conjoined discal and postdiscal orange band of fore wing more parallel-sided from 2–1a; the hind wing band slightly orange-scaled in outer mid area; the submarginal spots obscured in upper half but distinct in region of tails. *Underside.* With fore wing basal marks heavy. The discal band of hind wing silvery and extending through the inner fold. Postdiscal lunules strong, especially in lower portion.

Range: extending from the lower Meru (Mt. Kenya) area and the Njombe Range to southern Ethiopia, Mega and Neghelli to Dua River. (Map 6).

### *Charaxes viola daria* Rothschild

(Pl. 20, figs. 185–187)

*Charaxes etheocles daria* Rothschild, 1903 : 326.

*Charaxes etheocles chanleri* Holland; Rothschild, 1900 : 483. Males, Gillett Mts., Abyssinia (identified as *chanleri* Holland from Walenso, error!)

*Charaxes etheocles daria* Rothschild; Carpenter, 1935 : 360.

*Charaxes viola daria* Rothschild; van Someren & Jackson, 1952 : 264.

#### GROUP 2, AREA 4. EAST SIDE OF ETHIOPIAN RIFT

The only authentic female of this subspecies is black with white or creamy bands, as described hereafter.

**MALE.** Fore wing length 41–42 mm., shape falcate. *Upperside.* Ground colour black with very slight green sheen. Subcostal blue spots variable but usually with a blue spot at the end of the cell, one or two blue spots beyond, lower small, two subapical whitish or bluish and small;

marginal glaucous lunules well separated, often small or only just indicated. (In two specimens the subcostal spots are missing except for the upper subapical.) Hind wing black, no postdiscal greenish line as a rule but may be faintly indicated; submarginal whitish spots usually obscured in upper part but more distinct in region of tails; marginal border may be reddish or a mixture of reddish and greenish then olive to anal angle; margin black; tails short of about equal length 5-4 mm., black with olive mid line. *Underside*. Fore wing ground colour greyish brown with satiny bar in the cell, a bar through the disc and a patch at upper part of apex; black lines distinct but not heavy; postdiscal black line thin, then heavy at 1b; submarginal dark spots present but only black at tornus. Hind wing slightly more brownish, but satiny bars not strong; postdiscal line of olive and maroon lunules outlined in black, proximally, well marked; submarginal linear marks faint; marginal border narrow, reddish above upper tail then olive to anal angle. In some specimens the underside ground colour may be more uniform, the whole surface shiny, except in the curve of the fore wing which is browner.

Descriptions based on topotypical specimens from Gugura and Gillett Mts. (Pl. 20, fig. 187.)

**FEMALE.** Fore wing length 37 mm., shape slightly falcate. *Upperside*. Ground colour black with slight bluish sheen at base and along costa. Pattern: a small white spot in the cell (absent in the type). In the discal row two elongate spots between end of cell and postdiscal series, spot in 4 set well in, spots in 3 to hind margin increasing in size, first two rounded on inner end, that in 1b angled. Postdiscal spots, three in subapex in a row, spot in 4 set in, those in 3-2 free, or just touching discal spots. Hind wing ground colour brownish black at base fading to greyish on inner fold but border of wing black; discal band widest at costa tapers toward inner fold above anal angle; but there represented by a pale mark, the whole band white, slightly bluish on borders of lower half. Submarginal line of whitish marks complete and distinct; submarginal border reddish above upper tail then olive to anal angle; margin black. Tails, 7 mm. and 5 mm. *Underside*. Fore wing greyish brown, slightly browner on curve of the wing. Black marks at base fairly strong on inner border of discal band; discal band whitish; postdiscal spots well represented and outlined in black proximally with a black spot in 1b; submarginal dark spots distinct, increasing in size and blackness to double mark in tornus. Hind wing ground colour slightly browner, especially on distal border; basal black marks fine; discal band as above but slightly narrower, whitish and extending to inner fold; postdiscal line of lunules olive and maroon strongly indicated; submarginal line complete; marginal border as usual with black dots in area of tails and double at anal angle. (Pl. 20, figs. 185, 186, type.)

*Variation*. (a) *Upperside*. Very similar to foregoing but upper discal and postdiscal white marks larger, though lower discal marks are less wide but contiguous with postdiscal marks in 1a-1b. *Underside*. There is a corresponding difference.

*Variation*. (b) *Upperside*. Ground colour of both wings above browner; the discal and postdiscal white marks conjoined from 5 to 1b, but the lower part of the band hardly wider or less wide than in nominate form. *Underside*. Pattern is creamy, the black marks strong.

*Variation*. (c) A specimen which I place as this race differs in having the upperside ground colour of both wings almost black, the upper discal and postdiscal spots reduced in size, the lower marks narrower, all marks creamy. The hind wing band slightly narrowed and cream in colour; the submarginal linear marks obscured.

Through the kindness of Dr. Viette of the Paris Museum, I have now been able to examine the material collected by Ungemach.

There are six males which agree very well on the upperside with an equal series of topotypical males of *daria* from Walenso and Gillett Mts. On the underside they are also very similar, the only difference being that three of the Youbdo males are rather uniform on the underside, lacking any strong pattern, but this variation is also to be noted in other races of *Charaxes viola* such as *picta*.

The two females are extremely interesting. That identified as *daria* Rothschild differs from nominate *daria* by the upperside having a much narrower fore wing bar

in 1a-1b, the mark in 2 more elongate-quadrate, the one above in 3 same shape but smaller, marks in 4-5 conjoined, those in 6 free, the subcostal-subapical mark also free; all marks from 2 to subcostal slightly creamy tinged. That stated to be near form *vansomereni* Poulton of *viola picta* has a very similar pattern on the upperside but the bars are broader in both wings, that of the hind wing especially so, being white with bluish borders; the fore wing spots conjoined to 6, orange-ochre in colour, thus very similar to form *vansomereni* of *viola picta*.

It would thus appear that the Youbdo aggregate may possibly intergrade with the *viola-picta* aggregate on the eastern Sudan border.

Ungemach records a female form like ♀ f. *vansomereni* Poulton as belonging to *daria*, but since his specimen came from Youbdo, west of the Abyssinia Rift in Walegga country, there is some doubt about its correct position.

Range: The type and topotypes are from the east side of the Abyssinian Rift from Jabalo, Gugura and Gillett Mts. at Walenso. This race seems to extend to the upper Schebeli on the east and to Adola on the west. (Map 6).

Records from Walegga (Ungemach & Carpenter) probably represent a mixed aggregate.

### *Charaxes viola phaeus* Hewitson

(Pl. 21, figs. 193-200)

*Charaxes phaeus* Hewitson, 1877 : 82.

*Charaxes phaeus* Hewitson; Trimen & Bowker, 1887 : 344.

*Charaxes phaeus* Hewitson; Butler, 1895 : 361.

*Charaxes etheocles phaeus* Hewitson; Rothschild & Jordan, 1900 : 488.

*Charaxes etheocles* ♀ f. *coryndoni* Rothschild, 1900 : 488.

*Charaxes viola phaeus* Hewitson; van Someren & Jackson, 1952 : 269.

*Charaxes viola phaeus* ♀ f. *vansoni* van Someren & Jackson, 1957 : 43.

#### GROUP 3, AREA I, SEE RANGE P. 148

In this group we find the first evidence of complete divergence amongst the female forms from a " *viola*-like " pattern to that of *phaeus*. But amongst the southern or typical *phaeus* we find a white-barred female form which resembles somewhat the female forms *daria*, *handari* and *achaemenesopsis* of northern races of *viola*. This form we named *vansoni*. In this subspecies also, one is faced with the fact that there are two environmental aggregates: (a) that of the southern areas (Beira-Transvaal-Rhodesia and part of Bechuanaland) in which *phaeus* and *vansoni* occur side by side, and (b) the aggregate of the northern range of *phaeus* (Malawi, Tanzania to the west side of Lake Victoria), in which only the form *phaeus* has been recorded.

One must assume that there is a genetical foundation to the dual female form in the south, and that the genes for *vansoni* are absent in the northern aggregate. We thus have what I have termed (for want of a better term) bio-ecological strains, in which ecological environmental conditions have played an important part.

#### Subarea (a). SOUTHERN AGGREGATE OR NOMINATE

MALE. Fore wing length 27-30 mm., shape falcate. *Upperside*. Ground colour blue-black with greenish sheen at base of costa; blue spots limited to one at upper angle of cell, two spots beyond cell, upper large, lower small, two spots in subapex bluish or whitish; glaucous marginal



lunules small, well separated. Hind wing ground colour black; some specimens with a varying amount of greenish lunules in the postdiscal line opposite tails; submarginal spots blue or bluish white, complete; marginal border narrow, greenish red above upper tail then olive to anal angle; tails short, 3-4 mm. *Underside*. Fore wing ground colour earthy grey-brown or even pinkish grey, very uniform and plain-looking, relieved slightly by usual satiny bars; black lines thin; submarginal dark marks in curve of wing present but slight, strongest at tornus. Hind wing ground colour as fore wing, satiny bars weak; postdiscal lunate marks faint narrowly reddish and olive; margin as usual.

Description based on topotypical specimens.

♀ form *phaeus* Hewitson, 1877 : 82

Fore wing length 33-34 mm., shape slightly falcate. *Upperside*. Basal triangle of fore wing pale blue with slight greenish sheen, or slightly violet-tinged in old specimens, the blue not reaching the end of cell but in its lower angle extending to the postdiscal line on the hind border; distal portion of wing black, paler toward the curve on outer border; subapical spots in postdiscal line large and whitish, spot below smaller, other spots faintly indicated and bluish reaching 1b. Hind wing mostly pale blue from base to postdiscal line, often with a dark spot at costa; border black, widest at upper part in 6-7 then tapering to anal angle; submarginal spots blue with white central dot; submarginal border reddish above upper tail then olive to anal angle; margin black, tails 7-5 mm. long. *Underside*. Fore wing ground colour pale greyish brown with a pinkish glaze overall, so that the satiny bars are obscured and the pattern subdued, the black marks, except the tornal black ones, hardly visible. Hind wing as fore, all marks subdued.

♀ form *coryndoni* Rothschild, 1900 : 488

*Variation*. *Upperside*. Similar to *phaeus* but postdiscal spots of fore wing distinct to 1b; the blue of the hind wing often complete in costal area without any interruption.

♀ form *vansoni* van Someren & Jackson, 1957 : 43

Very similar to the white-barred forms in *viola kiriki* or *viola suk*. Fore wing length 34 mm., shape falcate. *Upperside*. Ground colour of fore wing brownish at base but darker toward discal line and on outer border. Discal and postdiscal series of spots well apart except that the spots in 1b may touch. Hind wing ground colour brownish black at base, blacker on border; but paler on inner fold. Discal white band extending from costa, where it is widest, then tapering toward inner fold and there represented by a pale mark, the lower half of the band shaded with blue. Submarginal linear marks clear, lilac or bluish with white centres; submarginal border narrow above upper tail and dull reddish, then olive to anal angle; margin black; tails longish, 7-5 mm. *Underside*. Basal area of fore wing pale greyish shading to brownish toward the outer border, basal black marks thin but distinct; discal band well represented, creamy to ochre; postdiscal spots suffused over; submarginal brownish marks obscured though tornal black marks distinct. Hind wing marks obscured, the discal pale band slightly indicated at costal end. The whole underside with a satiny glaze. (Pl. 21, figs. 199, 200.)

Subarea (b). NORTHERN AGGREGATE

Attention was drawn to this aggregate by van Someren & Jackson, 1957 : 44. We expressed the view that a satisfactory placing could not be made until material had actually been bred; unfortunately this has not been possible, but considerable additional material has been captured, especially in the Kigoma area north-east of Lake Tanganyika. These specimens bear out the observation that they are larger than nominate *phaeus* of southern regions and are rather more brownish below.



3. ♀ form *caerulescens* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 165, 166)

This is a development from the previous two forms toward form *phaeus* of *viola phaeus*. *Upperside*. The basal areas of both wings are an iridescent greenish blue sharply defined distally. The fore wing discal spots missing and the postdiscal series represented by two large subapical spots and obscured spots in 4-2. *Underside*. Red-brown with strong lilac bloom overall, thus pattern obscured. This is rather a small form, fore wing length 33 mm.

4. ♀ form *albocaerulea* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 159, 160)

A development from form 2. *Upperside*. The bases of both wings pale blue, that of fore wing whitish in distal area in 1a-1b. and part of the enlarged discal blue spots; the postdiscal spots large and white in subapical area, but blue from 5-1b. Hind wing blue not reaching the costa but here represented by a separate blue mark. *Underside*. Less reddish brown, more greyish than previous form, with a stronger pattern visible especially on the distal borders of both wings.

5. ♀ form *albimacula* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 161, 170)

*Upperside*. Represents a development from form 4 in the direction of a white-barred form, but retaining the blue scaling at the bases of both wings. The fore wing discal spots are white, two large spots beyond end of cell, an obscure spot at base of 4, spots from 3 to 1b increasing in size. Postdiscal spots are: two subapical, white, rest from 4 to 1b smaller and that in 1b bluish. Hind wing discal band widest at costa is whitish, strongly suffused with blue on lower half. *Underside*. Rusty brown but discal band of fore and hind wing visible.

6. ♀ form *ochremaculata* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 167, 168)

*Upperside*. Bases of both wings brownish with strong blue to greenish scaling. Fore wing with a large ochre spot in the cell, discal and postdiscal spots ochreous, well separated up to 2 then fused in 1a, 1b forming a large mark tinged with ochre distally and greenish proximally. Hind wing band widest at costa and extending toward inner fold, white in middle but borders suffused with greenish blue. *Underside*. Greyish brown, rusty on borders but with satiny sheen overall but not obscuring the bars of above, these are strong and ochreous in colour.

7. ♀ form *diversiforma* van Someren & Jackson, 1957 : 44

(Pl. 18, figs. 162, 169)

In the type, the spots on the upperside of fore wing are separated to area 2 and then conjoined. In the specimen here figured, the discal and postdiscal tawny orange spots are conjoined from 4 to hind margin. The hind wing band, widest at costa, is creamy, tinged greenish blue on borders.

strong; discal white bar strong, distally bordered with black especially in subcostal area; post-discal zigzag reddish and olive lunules present but strongest in lower half toward anal angle; submarginal lunules well marked and with black distally to double dots in anal angle; border reddish above upper tail then olive to anal angle.

Holotype female. ZAMBIA: 60 miles on Mwinilunga to Kabompo Rd., 1-5. vi. 1963 (C. B. Cottrell).

*Variation.* Fore wing length 34 mm. *Upperside.* Ground colour and general pattern similar to nominate form but all white marks larger and the basal areas of both wings more shaded with pale blue, increasing in intensity at discal row of spots fore wing and on borders of hind wing discal band. *Underside.* Very similar to nominate form. The interesting feature in this variety is the blue suffusion over the bases of the wings.

♀ form *tricolor forma n.*

*Upperside.* Ground colour rather blacker than in nominate form with a strong greeny blue sheen at base, more strongly blue on proximal border of fore wing discal spots in 1a-1b.

General pattern of fore wing as in nominate form but all spots orange-ochre to orange, slightly paler to whitish on inner half of marks in 1b. Hind wing ground colour black with strong greenish blue on proximal border of discal band, which is white in the upper half. *Underside.* Rather darker in ground colour than nominate form, with all marks other than black lines, white and in strong contrast. (Pl. 19, figs. 183, 184.)

Holotype female. Same data as holotype female *variata*.

♀ form *rosella forma n.*

*Upperside.* Ground colour similar to nominate form, fore wing with a curved white bar extending from the costa at and beyond the cell end to hind margin; spot in 2 a long triangle; spots beyond cell free; postdiscal spots limited to three subapical and one each in 4-3. *Underside.*

Fore wing presenting a strong replica of the upperside pattern with submarginal pale and dark marks strong. Hind wing discal band strong in upper half but narrower and irregular in 3-2, widening again toward inner fold. Postdiscal zigzag line of lunules strong, ochreous at costal end but lilac and maroon to anal angle and outlined in black; submarginal pale line well marked with large bluish spots, black-centred in region of tails. (Pl. 19, figs. 175, 176.)

Holotype female. Same data as previous forms.

♀ form *cottrelli forma n.*

This interesting form exhibits a transition toward the form *phaeus* of *viola phaeus*.

*Upperside.* Basal areas of fore wing including the discal line in 1a-1b, greenish blue; the disc of the hind wing also blue, the rest of the wing black. Fore wing with discal spots, two beyond cell, spot in 4 set well in, all white; spots in 3-2 larger and slightly blue, spot in 1b merged into blue of base; postdiscal spots, three in subapex white, spot in 4 set in, followed by ochreous spots in 3-1b. Hind wing basal area and discal patch greenish blue represented at costa by a blue quadrate mark; extreme base slightly dark-scaled; submarginal linear marks bluish white, black distally, very strong; marginal border reddish above upper tail, then olive to anal angle. (Pl. 19, figs. 177, 178, type.)

*Variation.* *Upperside.* Very similar to form *rosella* but basal blue areas inclining to whitish in lower discal line 1-1a-1b. Upper discal spots in cell and in 3 ochreous, that in 2 blue. Post-discal spots three in subapex, upper two white, lower ochreous, followed by less distinct spots

in 4-3 also ochreous but spots in 2 and 1b bluish, the lower one contiguous with blue in discal line. Hind wing basal areas and disc blue, but not reaching the costa, here represented by a free blue mark. Submarginal line of linear marks, bluish white and strong, margined distally in black; marginal border as usual. *Underside*. Ground colour earthy brown with rusty purplish tinge; pattern not very strong but ternal black marks heavy.

Holotype female. ZAMBIA: Mankoya, 10.xii.1955 (C. B. Cottrell).

Range: This race is known from the N.W. regions of Zambia from Mwinilunga area and at Kabompo and Mankoya thus mostly between the upper Zambesi and its tributary, the Kabompo River. (Maps 6, 7).

GROUP 4, AREA 2. S. KATANGA, CONGO

*Charaxes viola diversiforma* van Someren & Jackson

(Pl. 18, figs. 157-172)

*Charaxes viola diversiforma* van Someren & Jackson, 1957 : 44-46.

MALE. Fore wing length 36 mm., shape falcate, but less so than *variata* or *picta*, and larger than either; in size and general appearance more like *kivki*. *Upperside*. Ground colour fore wing blue-black, with slight greenish sheen at base of costa and cell. Pattern: a trace of a blue spot in the cell, two blue spots beyond, the upper large; two whitish or ochre-tinged spots in subapex, sometimes a third small dot; traces of blue spots in 4-3. Glauconous marginal lunules ill-defined, separated by dark veins. Hind wing blue-black, duller on inner fold; a greenish wavy line in postdiscal zone most distinct opposite tails; submarginal row of bluish white spots complete; submarginal border slightly reddish green above upper tail then olive to anal angle; margin black, tails rather short, of about equal length 5-4 mm. *Underside*. Ground colour earthy brown; pattern rather obscured, the satiny bars indistinct and the black marks thin on both wings. (Pl. 18, fig. 172.)

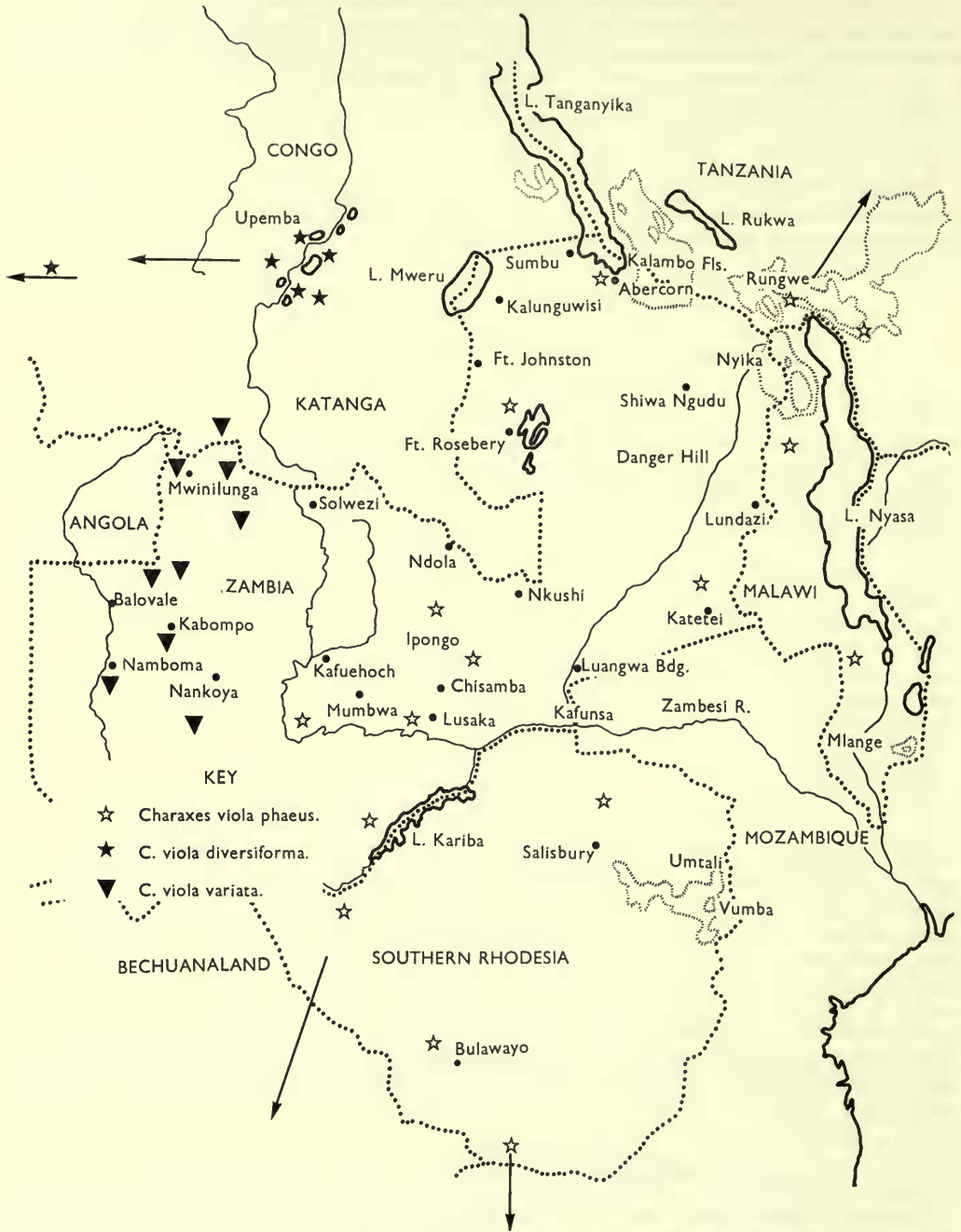
Females very variable, the following forms have been named:

1. ♀ form *purpurea* van Someren & Jackson, 1957 : 45

Fore wing length 34 mm., shape falcate. *Upperside*. Ground colour purplish black with strong bluish green sheen at bases of wings. This form bears a superficial resemblance to *Charaxes virilis* Rothschild but differs in having both a discal and postdiscal series of bluish spots, the two upper subapical whitish. Marginal glauconous lunules slightly developed. Hind wing basal area suffused with purplish green, distal border black carrying an irregular post-discal greenish band; submarginal row of whitish lilac linear marks complete and clear; marginal border as usual. Tails thin, 6-4 mm. long. *Underside*. Strongly rusty brown, more rusty on outer border of fore wing; slight indication of satiny bars in sub-base and through disc. Hind wing ground colour as fore wing, all black marks very fine; postdiscal line of lunules present but suffused over with a golden rusty bloom; submarginal spots lilac but obscured; marginal border very narrow and indistinct. (Pl. 18, figs. 157, 158.)

2. ♀ form *viridicaerulea* van Someren & Jackson, 1957 : 45

*Upperside*. Differs from form 1 in lacking the discal blue spots other than the one beyond end of cell; the postdiscal series rather stronger and extending to the hind border in line with the more pronounced postdiscal bar in the hind wing. The basal areas of both wings iridescent greenish blue. *Underside*. Red-brown with rusty golden bloom obliterating all pattern except the ternal black spot of fore wing. (Pl. 18, figs. 163, 164.)



MAP 7.

3. ♀ form *caerulescens* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 165, 166)

This is a development from the previous two forms toward form *phaeus* of *viola phaeus*. *Upperside*. The basal areas of both wings are an iridescent greenish blue sharply defined distally. The fore wing discal spots missing and the postdiscal series represented by two large subapical spots and obscured spots in 4-2. *Underside*. Red-brown with strong lilac bloom overall, thus pattern obscured. This is rather a small form, fore wing length 33 mm.

4. ♀ form *albocaerulea* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 159, 160)

A development from form 2. *Upperside*. The bases of both wings pale blue, that of fore wing whitish in distal area in 1a-1b. and part of the enlarged discal blue spots; the postdiscal spots large and white in subapical area, but blue from 5-1b. Hind wing blue not reaching the costa but here represented by a separate blue mark. *Underside*. Less reddish brown, more greyish than previous form, with a stronger pattern visible especially on the distal borders of both wings.

5. ♀ form *albimacula* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 161, 170)

*Upperside*. Represents a development from form 4 in the direction of a white-barred form, but retaining the blue scaling at the bases of both wings. The fore wing discal spots are white, two large spots beyond end of cell, an obscure spot at base of 4, spots from 3 to 1b increasing in size. Postdiscal spots are: two subapical, white, rest from 4 to 1b smaller and that in 1b bluish. Hind wing discal band widest at costa is whitish, strongly suffused with blue on lower half, *Underside*. Rusty brown but discal band of fore and hind wing visible.

6. ♀ form *ochremaculata* van Someren & Jackson, 1957 : 45

(Pl. 18, figs. 167, 168)

*Upperside*. Bases of both wings brownish with strong blue to greenish scaling. Fore wing with a large ochre spot in the cell, discal and postdiscal spots ochreous, well separated up to 2 then fused in 1a, 1b forming a large mark tinged with ochre distally and greenish proximally. Hind wing band widest at costa and extending toward inner fold, white in middle but borders suffused with greenish blue. *Underside*. Greyish brown, rusty on borders but with satiny sheen overall but not obscuring the bars of above, these are strong and ochreous in colour.

7. ♀ form *diversiforma* van Someren & Jackson, 1957 : 44

(Pl. 18, figs. 162, 169)

In the type, the spots on the upperside of fore wing are separated to area 2 and then conjoined. In the specimen here figured, the discal and postdiscal tawny orange spots are conjoined from 4 to hind margin. The hind wing band, widest at costa, is creamy, tinged greenish blue on borders.

8. ♀ form *cupreopurpurea* van Someren & Jackson, 1957 : 45

(Pl. 18, fig. 171)

*Upperside.* Ground colour brownish black with a strong purplish sheen overall, so that the discal and postdiscal spots which are entirely separate are coppery coloured. Hind wing ground colour brownish black with strong purplish gloss, the discal band greenish blue with dyslegnic borders.

The foregoing descriptions are based on paratypes (kindly loaned by the Tervuren Museum) and are complementary and supplementary to the original descriptions of the types.

Range: All material of this subspecies has come from the Upembe area of S. Katanga of the Congo; Upembe, Lulua, and Kafskumba. (Maps 6, 7).

***Charaxes viola loandae* ssp. n.**

(Pl. 17, figs. 145-152)

GROUP 4, AREA 3. N.W. ANGOLA

This subspecies presents features which suggest a parallel evolution to that of *diversiforma*, and might even be considered identical to that race but for the fact that the males differ as do the females.

MALE. Fore wing length 28-31 mm.; shape falcate. *Upperside.* Ground colour blue-black with slight greenish sheen at base of fore wing. Blue spots limited to one blue spot in the cell, one large spot and a dot below beyond cell end, two subapical spots bluish white and blue; glaucous marginal lunules with central white mark complete from subapex to tornus. Hind wing ground colour black with a trace of a wavy greenish line in postdiscal zone; submarginal whitish spots large and distinct in type, (or may be small); marginal border largely reddish to anal angle, or ochreous with some reddish to anal angle; edge black, with white fringe between veins distinct; tails short, 5-4 mm. long. *Underside.* Very similar to that of male *phaeus*, pale greyish brown with satiny bars very faint, black marks thin, but ternal black mark strong. Hind wing ground colour as fore wing, the postdiscal line visible but not strong; pale submarginal line indistinct; marginal border narrowly red and olive to anal angle. (Pl. 17, fig. 150.)

Female forms very variable, the following are named:

1. ♀ form *primitiva forma n.*

(Pl. 17, fig. 152)

*Upperside.* Male-like, ground colour of fore wing blue-black with very strong greenish tone over basal area, blacker in disc, but greyer on border in curve of the wing. There is a blue spot in the cell, an indication of a spot in subcosta beyond the cell; the postdiscal series of blue spots from subapex to 2 rather indistinct; marginal lunules glaucous but diffuse. Hind wing black, strongly suffused over with bluish green, bordered in discal line with stronger bluish green bar complete from costa to above anal angle; submarginal white spots distinct; marginal border mostly reddish and mixed with olive toward anal angle. Tails thin, upper 6 mm., lower 5 mm. *Underside.* Ground colour pale rusty brown with a strong purplish bloom overall;



satiny bars obscured; black lines faint but those in 1b fore wing stronger though tornal mark is weak.

2. ♀ form *basiviridis* forma n.

(Pl. 17, fig. 151)

Somewhat like form 1 but differing as follows: *Upperside*. Ground colour black but bases of both wings more strongly green and limited to basal triangles. Fore wing with two white subapical spots, rest in postdiscal line blue and hardly visible. Marginal lunules ill-defined. Hind wing postdiscal wavy greenish line stronger; submarginal row of spots greenish; marginal border a mixture of reddish and green scales. *Underside*. As in form 1.

3. ♀ form *violitincta* forma n.

(Pl. 17, fig. 145)

*Upperside*. Ground colour black, base of fore wing violet-blue to discal line at 1a-1b, but fading out at costa at mid cell, discal bar represented by paler blue diffuse spots increasing in size from 3 to hind margin; margin of wing slightly brownish but lunules not definite. Hind wing slightly brownish at the base, but disc of wing with a large violet patch not reaching costa but here represented by a free spot; submarginal linear blue marks distinct; marginal border a mixture of bluish and ochre then olive to anal angle. *Underside*. Very similar to previous forms but black marks stronger and the tornal spot blacker.

4. ♀ form *vansonoides* forma n.

(Pl. 17, fig. 149)

*Upperside*. A transitional form toward form *vansoni* of *viola phaeus*; and somewhat like form *albimacula* of *viola diversiforma* but without any blue at bases of wings, these areas being black with a strong green sheen. The discal and postdiscal fore wing spots large; the margin of fore wing with indistinct brownish lunules. Hind wing base black with slight green sheen; discal band white, widest at costa, strongly suffused with greenish blue on outer border; submarginal linear marks bluish white, well developed; marginal border reddish above upper tail, ochreous olive to anal angle. *Underside*. Ground colour as in previous forms but white areas of upperside pattern apparent though narrower and ochreous in colour.

5. Nominate ♀ form *loandae* forma n.

(Pl. 17, fig. 146)

*Upperside*. Basal areas of fore wing brownish, with purplish sheen; pattern as in form 4 but all spots tawny orange, slightly bluish in 1a. Hind wing basal area brownish with strong blue sheen in side light; discal band white, extending from costa to above anal angle, strongly blue-scaled on the borders especially in lower half; submarginal linear marks bluish white and strong; marginal border reddish above upper tail, then mixed olive and reddish to anal angle.

6. ♀ form *protokirki* forma n.

(Pl. 17, fig. 148)

*Upperside*. Fore wing basal area brownish black with strong purplish sheen, darker toward the inner border of the discal band and on border of wing, but margin rusty brown; discal and postdiscal spots orange with indications of joining rays between spots in 2-4. Hind wing basal area brownish black with purplish blue sheen; discal band, widest at costa, is here orange, then

shades to ochre and whitish toward inner fold above anal angle, the outer border with strong blue scaling. Submarginal bluish white linear marks strong; marginal border reddish above upper tail then olive to anal angle. *Underside*. Purplish brown, black marks in fore wing distinct, the tornal black spots strong. Pattern of upperside represented below but slightly reduced and rusty ochre in colour.

7. ♀ form *instabilis* forma n.

(Pl. 17, fig. 147)

*Upperside*. Somewhat like form of the nominate *diversiforma*, but base of fore wing paler brownish with some green scaling; discal and postdiscal orange spots fused from 5 to hind margin but with some indication of dark scales in line of fusion to 2. Margin of wing rusty. Hind wing basal area light brown with purple greenish sheen; discal band broad, widest at costa and slightly ochre-tinged here, but whitish suffused with blue at lower half; border black with submarginal bluish white linear marks well developed; marginal border reddish above upper tail then reddish mixed with olive to anal angle. *Underside*. Rusty greyish; basal black marks thin; pattern of upperside only slightly represented.

Range: The series of *viola loandae*, from which the foregoing forms have been selected for description, was bred in the Dundo area near Loanda in the north west district of Angola. The food plant was not specified. (Maps 6, 7).

Biological note

Many of the races have been bred on the following food plants:—

- Charaxes viola picta*: Uganda and N.W. Kenya, *Albizia coriaria*, *Albizia gummifera*, *Albizia* sp. (*sassa* auct.), *Entada abyssinica*, *Entada sudanica* (Leguminosae).
- Charaxes viola kirki*: Kenya and Tanganyika; *Albizia schimperiana*, *Albizia adianthifolia* (*Al. fastigiata* auct.), *Entada leptostachya*, *Acacia mellifera*.
- Charaxes viola suk*: Karamoja, Suk, Kamasia: *Acacia mellifera*, *Albizia coriaria*, *Albizia* sp. indet.
- Charaxes viola phaeus*: Transvaal: *Acacia caffra*.

I have conducted experiments to try and find out the degree of possible interchange of food plants, with little success.

- Newly hatched larvae from eggs laid on *Entada* sp. (Uganda) refused to feed on *Entada abyssinica* (Kenya);
- Larvae first fed on *Albizia coriaria* (Uganda) refused to feed on *Albizia schimperiana* (Nairobi, Kenya).
- Larvae from eggs laid on *Acacia mellifera* either refused to feed on *Albizia schimperiana*, or those that did so, died in the next two instars;
- Captive females, caught in *Acacia mellifera* country where they were seen laying on this plant, refused to lay on fresh foliage of *Albizia schimperiana*, but when foliage of *Acacia mellifera* was supplied, they laid readily. But when the newly hatched larvae were placed on *Albizia schimperiana* and *Al. gummifera*, few survived to pupate.

I am of the opinion that, in the case of *Charaxes viola*, selection of food plant by the female is an important factor in the build-up of localized strains. The degree of discrimination is often rigid.

The fact that these food plants grow in different ecological environments has brought about a restrictive choice of habitat, which almost amounts to a form of ecological barrier between groups of the same species; and this has given rise to certain morphological characters such as size, coloration and pattern. Cf. *viola picta*/*viola suk*; *viola suk*/*viola kirki*.

***Charaxes viola brainei* van Son<sup>1</sup>**

(Pl. 17, figs. 153-156)

*Charaxes ephyra* Godart; Trimen, 1891 : 80.

*Charaxes viola brainei* van Son, 1966 : 3.

I have only been able to examine a single pair of this new subspecies, kindly presented to the B.M. (N.H.) by the collector. From this meagre evidence, I am unable to check on the characters claimed for this race, or to evaluate the statement that this is the only form of female occurring in the northern area of S.W. Africa.

Range: Apparently confined to S.W. Africa, Kombat area. (Map 6).

SYSTEMATIC LIST

***Charaxes viola* Butler**

*Charaxes viola viola* Butler, 1865. Type locality: "W. Africa". Range: Senegal to N. Nigeria and Lake Chad (?).

*viola picta* van Someren & Jackson, 1952. Type locality: Uganda, Unyoro, Kitanwa. Range: S. Nigeria, Cameroon, then skirting north of equatorial forest to E. Congo, Uganda, S. Sudan, and N.W. Kenya.

♀ f. *vansomereni* Poulton, 1925. Type locality: Uganda, Kampala, Bugala.

*viola kirki* Butler, 1881. Type locality: Tanzania, Momboia. Range: N. and Central Tanzania and along coast to north of Ruvuma River. Kenya, along coast and inland Ukambani, Masai Country, Kikuyu area, Nairobi, Thika, Fort Hall, Sagana and Nyeri.

♀ f. *albifascia* Poulton, 1925. Type locality: Kenya, Teita Hills, Dabida.

♀ f. *rogersi* Poulton, 1919. Type locality: Kenya, Teita Hills, Dabida.

♀ f. *handari* Poulton, 1925. Type locality: Tanzania, nr. Mvumi.

*viola suk* Carpenter & Jackson, 1950. Type locality; Kenya, Suk, Kacheleba. Range: N. and Central Kenya.

♀ f. *kirkooides* Carpenter & Jackson, 1950. Type locality: Kenya, Suk, Kacheleba.

♀ f. *achaemenesopsis* Carpenter & Jackson, 1950. Type locality: Kenya, Suk, Kacheleba.

<sup>1</sup> On map 6, the author's name is wrongly spelt as "van Som".

- ♀ f. *intermedia* Carpenter & Jackson, 1950. Type locality: Kenya, Suk, Kacheleba.
- ♀ f. *albifascia* Poulton, 1926. Type locality: Kenya, Teita Hills, Dabida.
- viola chanleri* Holland, 1895. Type locality: Mt. Kenya, Njombeni Range. Range: Mt. Kenya to S. Ethiopia.
- viola daria* Rothschild, 1903. Type locality: Ethiopia, Jalalo-Gugura. Range: east side of Ethiopian Rift.
- viola phaeus* Hewitson, 1877. Type locality: Mozambique, Delagoa Bay. Range: Southern aggregate, Mozambique to Transvaal, E. Bechuanaland, Rhodesia and S.W. Zambia, S. Malawi, Tanzania, east side of north end of Lake Nyasa.
- ♀ f. *corydoni* Rothschild, 1900. Type locality: Upper Zambezi, Gazungula.
- f. *vansoni* van Someren & Jackson, 1957. Type locality: Transvaal, Malta Forest, Pietersburg Dist. (♂ Holotype), Transvaal, Pretoria (♀ Allotype). Northern aggregate, N. Malawi and Tanzania, S. Highlands, east side of Lake Tanganyika to S.W. Lake Victoria at Geita and Kitigati on Kagera R. (Tanzania to Uganda border).
- viola variata* ssp. n. Type locality: Zambia, 60 miles on Mwinilunga-Kabompo Rd. Range: N.W. Zambia.
- ♀ f. *tricolor* forma n. Type locality: Zambia, as nominate form.
- ♀ f. *rosella* forma n. Type locality: Zambia, as nominate form.
- ♀ f. *cottrelli* forma n. Type locality: Zambia, Mankoya.
- viola diversiforma* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga. Range: Congo, S. Katanga, Upembe area.
- ♀ f. *purpurea* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga.
- ♀ f. *viridicaerulea* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga.
- ♀ f. *caerulescens* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga.
- ♀ f. *albocaerulea* van Someren & Jackson, 1957. Type locality: Katanga, Lupweshi R.
- ♀ f. *albimacula* van Someren & Jackson, 1957. Type locality: Katanga, Kafakumba.
- ♀ f. *ochremaculata* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga.
- ♀ f. *diversiforma* van Someren & Jackson, 1957. Type locality: Katanga, Kafakumba.
- ♀ f. *cupreopurpurea* van Someren & Jackson, 1957. Type locality: Lulua, Kapanga.
- viola loandae* ssp. n. Type locality: N.W. Angola, Dundo area, nr. Loanda. Range: N.W. Angola.
- ♀ f. *primitiva* forma n. Type locality: N.W. Angola, Dundo area nr. Loanda.

- ♀ f. *basiviridis* forma n. Type locality: As above.  
 ♀ f. *violitincta* forma n. Type locality: As above.  
 ♀ f. *vansonoides* forma n. Type locality: As above.  
 ♀ f. *loandae* forma n. Type locality: As above.  
 ♀ f. *protokirki* forma n. Type locality: As above.  
 ♀ f. *instabilis* forma n. Type locality: As above.  
*viola brainei* van Son, 1966. Type locality: S.W. Africa, Kombat. Range:  
 north east of S.W. Africa.

2

### 9. *CHARAXES CYNTHIA* BUTLER

The species was described by Butler in 1865, based on a male taken in Ashanti, Ghana. He subsequently placed other material from Cameroon and N. Angola as this same species without comment. This lead was followed by other writers and has given rise to some confusion.

When Rothschild discussed the species in 1900, he pointed out that there appeared to be two distinct aggregates or subspecies, the nominate of the W. African regions, Sierra Leone to the Niger, the other occupying the area Cameroon, Congo to Unyoro in Uganda. He set out the differences between the two very clearly, but he refrained from giving a name to the latter group because of lack of female material.

Subsequent writers appear to have overlooked Rothschild's comments or did not agree with them. Thus we find that:

In 1912, when Grünberg reported on the Grauer collection from Central Africa, he described *Charaxes cynthia* ab. *mawamba* from the country west of Lake Albert, in N.E. Congo [not in Uganda], thus from the central African region as defined by Rothschild.

In 1920, Holland refers to the material collected by the American Museum Expedition at Medje, N.E. Congo, as *cynthia* Butler, without further comment.

In 1923, Le Cerf describes a female from Cameroon as *cynthia*, form *albofascia*. Thus he assumes that Cameroon examples are typical *cynthia cynthia* Butler. He however separates insects from Kindu, Upper Lualaba River, in the Kivu Province of eastern Congo as *cynthia kinduana*, thus distinguishing them from Cameroon specimens which he took to be nominate *cynthia* Butler.

In 1926, Lathy described *cynthia*, ab. *cizeyi*, which he compares with "forme typique" [*sic*]. His example came from S. Cameroon. In the same paper he described *cynthia parvicaudatus* from Mabira Forest, Uganda, which he compares with examples from "d'afrique occidentale" [*sic*].

In 1928, Talbot described *cynthia sabulosus*; the type being a "dry" form and the paratype a "wet" form, both taken in September; the type from Kinda, Kafakumbo, Katanga, S.E. Congo (*Overlaet*) "distinguished by its paler brown colouration"; he did not state with what he compared it.

In 1933 Le Moutt described *cynthia guineensis* from Karouane, French Guinea. Said to have been taken further north than other described races of *cynthia*. The description agrees with examples of the nominate race from Liberia, Sierra Leone and Ghana.

<sup>2</sup> *viola fagini* Storace. Type locality: Eritrea. No material available for examination. Original description unsatisfactory. On map 6 this name is wrongly spelt "figini".

In 1934 Rousseau-Decelle described a male from Etoumbi, French Congo (Central African Republic) as form *angusticlavius*. He also described *cynthia sabulosus* f. *aurantiaca*, from Kafakumbo, Katanga. Thus he recognizes the validity of that subspecies, but his specimen is an extreme "dry" form.

### *Charaxes cynthia cynthia* Bulter

(Pls. 22-27)

*Charaxes cynthia* Butler, 1865 : 625.

*Charaxes lysianassa* Westwood, 1874 : 181.

*Charaxes guineensis* Le Moul, 1933 : 16 **syn. n.**

**MALE.** Fore wing length 38-39 mm. Costa curved from mid-third to apex, outer border incurved at 3-4, hind angle projecting slightly at 1b. *Upperside.* Base of wing and costa to end of cell, rufous chestnut, discal zone of wing black with extensions toward costa at end of cell, the black forking at 4 and extending toward costa and enclosing two elongate rufous marks at mid-point 5-6 in discal line; fore wing bar rufous orange, extending from costa at subapex as spots of increasing size to hind margin, these spots to 2 usually free, rather ovoid in shape, those of 1a-1b larger and fused; there may sometimes be a suggestion of contiguous rufous spots proximal in 2-3 in discal line. Apex and border of wing black, with marginal rufous internervular spots largest at 1b. Hind wing basal area brownish black; disc of wing crossed by an orange ochreous bar, paler, more orange than bar in fore wing, extending from costa, where it may be even paler, toward the inner margin, usually almost parallel-sided, with slightly stronger rufous on distal border; postdiscal black band extending from costa to 2 and tapering to anal angle, 6 mm. wide at 6, even on inner border but slightly dentate at upper end; border rufous orange 3-4 mm. wide, tapering at anal angle; margin black with slight interrupted white fringe most evident at anal angle and slightly serrate; tails thin of about equal length 4-5 mm. long, mostly black, rufous at base. *Underside.* Fore wing ground colour purplish or vinaceous brownish grey, paler more shiny bars in subcostal area separated by rufous wavy bars; post-discal row rufous shaded, paler creamy proximally in 1a-1b, followed by a row of lilac-grey lunules in the submarginal zone, rather quadrate in subapex, contiguous in 1b and touching the tornal angle black mark; black marks sub-basal in 1b and 2 conspicuous as separate or fused irregular strong marks. Hind wing ground colour as fore wing, wavy rufous lines in basal area with paler lines in between; discal silvery creamy bar complete from costa to above anal angle, may be uniform in width 3 mm. wide, or narrower followed by a series of rufous and greyish lunules, with larger rufous spots distally. Submarginal row of lilac-grey and rufous lunules conspicuous, olive at anal angle with two black dots; margin narrowly black. (Pl. 22, figs. 201, 204, 202, 205.)

*Variation.* There is some slight difference in intensity of the black and rufous coloration especially in the fore wing, between fresh and partly worn examples as is to be expected, and the underside also exhibits this. The main characteristics of this race are unaffected. "Seasonal" forms do not seem to occur.

**FEMALE.** Considerably larger than the male, and paler; fore wing length 44-47 mm. *Upperside.* Costa, cell area and base rufous orange, with black mid area as in the male with some extensions of the black into the cell, the black area beyond the cell with two rufous elongate spots in the discal line; pale bar orange-ochre with a rufous flush over upper spots, spots more elongate than in the male; marginal rufous spots more conspicuous, in the black border of wing. Hind wing pattern as in the male, but discal band wider, pale orange-ochre with rufous on outer border tapering and crossing the inner fold; black border slightly variable in width, even on inner border, slightly dentate on outer where it meets the marginal rufous orange border; extreme margin black; tails long and thin 7-6 mm. *Underside.* Pattern much as in the male but light areas larger, the fore wing pattern divided into a basal and sub-basal area with heavy black

marks to discal line; discal series of spots fused with those of the postdiscal in 1b-2, the remaining postdiscal spots free up to subapex, creamy in colour; double triangular black mark at tornus, points toward border, remaining spots to apex less strong bordered distally with greyish rufous lunules; margin with rufous lunules interrupted by dark veins. Hind wing pattern as in the male, but pattern bolder, rather variable in width, 5-7 mm.; the discal bar narrower than above but edged distally with ochreous lunules, large in upper sector but thin toward inner margin, distally bordered with stronger rufous marks; submarginal row of lilac-grey and rufous lunules distinct; extreme margin black; margin slightly serrate. (Pl. 22, fig. 203, 206.)

Range: French Guinea, Liberia, Sierra Leone, Ghana and Nigeria, west of the Niger River. To the east it meets the next race. (Map 8).

*Charaxes cynthia cameroonensis* ssp. n.

(Pl. 27, figs. 237-242)

*Charaxes cynthia* f. *albofascia* Le Cerf, 1923 : 367.

*Charaxes cynthia* ab. *cizeyi* Lathy, 1926 : 93-94.

*Charaxes cynthia* f. *angusticlavius* Rousseau-Decelle, 1934 : 231.

I may be criticized for introducing an entirely new name for the mid-African race of *cynthia*. I do so because, as indicated in the general introduction, there has been much confusion between this aggregate and nominate *cynthia* in the past. The three names mentioned above have all been given to forms or aberrations, so called, names which have no standing and are not recognized under the Code.

MALE. Fore wing length 42-43 mm., thus larger than *cynthia cynthia*, and more heavily marked. *Upperside*. Fore wing, the basal rufous chestnut is more intense as a rule, and the black areas more solidly black especially in the area beyond the cell, thus almost obliterating the rufous marks. The postdiscal bar, made up of a series of spots of increasing size from subapex to hind margin, may show a trace of discal marks fused with the postdiscal in 2-1b., all marks strong rufous orange. The marginal rufous internervular marks strongest at the tornus, each with a slight white fringe. Hind wing basal area black with chestnut bloom especially toward costa; the discal band, slightly variable in width is strong rufous orange, as dark as the fore wing bar; clear-cut on the inner border more dyslegnic on the outer and tending to become suffused toward the inner fold; black band slightly varying in width, widest at upper sector, tapering towards anal angle with outer edge rather serrate where it adjoins the rufous orange border, which is black on the edge with very slight white fringe. Tails slightly shorter than in nominate subspecies, sharply pointed, 4 mm. long, rufous in colour slightly margined in black. *Underside*. General pattern similar to that of nominate subspecies but not so strong, in the upper half of the fore wing, the discal-postdiscal lunules more suffused over, but whitish in 1a-1b but these in the basal half may be as strongly black and rufous. On the hind wing the silvery white line, though slightly variable, is on the whole narrower than in the western race. The base of the costa in all races is white. (Pl. 27, figs. 239, 242).

♂ form *angusticlavius* Rousseau-Decelle, 1934 : 231

This is an extreme form, small in size, with the upperside rather dark in ground colour on both fore and hind wings, with the strong rufous orange bars of the wings reduced in width. The underside is also unusually dark, but the silvery discal line in the hind wing narrow but well marked.

FEMALE. On an average larger than *cynthia cynthia*, fore wing length 45-46 mm. *Upperside*. The basal rufous chestnut rather darker; the median black area tending to reduce or almost

obliterate the subcostal marks beyond the cell; the disco-postdiscal bar slightly narrower but strongly marked, creamy or creamy ochreous; marginal rufous marks strong to moderate. The hind wing band is generally narrower, creamy ochreous in colour; the black border beyond correspondingly broader, the outer border strongly dentate with the black extending along the veins into the rufous orange marginal border, which is narrowly black on the edge; tails long and thin. *Underside*. Pattern essentially similar to that of nominate *cynthia* but bolder, the discal and postdiscal pale marks of the fore wing and the discal band on the hind wing paler, more creamy, and more strongly marked. (Pl. 27, figs. 237, 238, 240, 241.)

*Variation.*

(a) The female figured on Pl. 27, figs. 237, 238, is the type of ab. *cizeyi* Lathy and conforms with the majority of females of this subspecies.

(b) Another female would appear to agree with *albofascia* Le Cerf. This has the fore and hind wing bars pale creamy to whitish.



MAP 8.



(c) A few females exhibit a degree of partial "melanism"; the bars of the fore wing and the band on the hind wing are more strongly orange and dusted over with brownish scales. The underside is not greatly affected, but in the specimen from Moyen Congo the submarginal and marginal lunate pale marks are exaggerated.

Although I have linked the specimens of the Central African Republic and Moyen Congo with the Cameroon subspecies, since the majority in the aggregates agree, one finds some degree of variation in all three areas.

Range: Cameroon (and adjacent eastern S.E. Nigeria where there is some contact with nominate *cynthia*) to Central African Republic (French Congo), the Moyen Congo to the Congo River basin; making some contact with *kinduana* in west central Congo. (Map 8. On this map the specific name is given in error as "cameroona".)

### *Charaxes cynthia kinduana* Le Cerf

(Pl. 26, figs. 231-236)

*Charaxes cynthia kinduana* Le Cerf, 1923 : 366.

*Charaxes cynthia*, ab. *mawamba* Grünberg, 1912.

Through the kindness of Dr. P. Viette of the Paris Museum, I have obtained a photograph of the type of *kinduana* Le Cerf. This depicts a very dark specimen which appears to be semi-melanistic; the black area of the fore wing is more extended than usual, occupying the basal half of the wing with the exception of the cell area; the usual subcostal rufous spots are entirely obliterated; the postdiscal series of spots are reduced in size and thus well separated to 2 and dark rufous; the marginal spots absent except at the tornus. The hind wing band is reduced in width, the upper marks well separated and darker brownish rufous; the marginal border is narrower and darker. *Underside*. Pattern of both wings is obscured except for the black marks at the base of the fore wing and the pale area in 1a-1b; the hind wing pattern obscured except for the conspicuous silvery white discal line which is very narrow.

Since the type specimen appears to be abnormal, it becomes difficult to assess what are the normal characteristics of this race. The position is further complicated in that in 1912 Grünberg described what he called *cynthia* ab. *mawamba* from what is generally accepted to be the same ecological area whence came the type of *kinduana* Le Cerf. The description of *mawamba* agrees more closely with the general run of males of this area than does that of *kinduana*. The description which follows is based on material from the eastern Congo.

MALE. Fore wing length 44-45 mm. *Upperside*. General pattern as in the more western ssp. *cameroonensis*, but basal rufous colour slightly paler, the subcostal rufous spots distinct though small, (slightly obscured in some specimens); the disco-postdiscal rufous orange spots separated from subapex to 3, the rest to hind margin larger and conjoined, with some indication of discal marks in 2-3; marginal rufous spots present but most distinct at the tornal angle. Hind wing basal area brownish black, paler on inner fold; discal band widest at costa 5-6 mm. then tapering rather strongly toward, but not reaching the inner fold; black band thus wider at costal end, and tapering toward anal angle; rufous orange marginal border wider, edged narrowly with black. Tails 4 mm. *Underside*. Very similar to *cameroonensis* but rather less

strongly marked with rufous on the fore wing, black marks rather overshadowed by darker ground; hind wing white bar somewhat variable in width; postdiscal rufous lunules, with dark band distally, show up plainly; submarginal row of pale marks indistinct; margin rufous. (Pl. 26, figs. 231, 234, type.)

**FEMALE.** In general pattern and colour somewhat similar to nominate *cynthia* but pale bars on fore and hind wing narrower. Fore wing marginal rufous spots strong; disco-postdiscal bar rufous orange, rather narrow. Hind wing discal band rufous orange, widest at costa, and tapering at 2 to above anal angle, slightly dentate in 4 on outer border; the black postdiscal band widest at 4-6, dentate on outer border and invading the rufous orange border along veins; margin narrowly black; tails longish, thin, upper 6 mm., lower 4 mm. *Underside.* Ground colour vinaceous grey with a rufous flush. Fore wing chestnut bars distinct but narrower; disco-postdiscal spots creamy ochre, more whitish in lower half flanked by black lines proximally and by the black tornal spots distally, the other submarginal dark dots to subapex more diffuse. Hind wing band more creamy ochre, clear-cut on inner border but merging into the postdiscal greyish and rufous lunules distally, the latter strongly marked; submarginal lunules large; marginal rufous orange border distinct. (Pl. 26, figs. 232, 235, 233, 236.)

Range: eastern Congo from the Kivu Province area along the Lualaba River to Stanleyville, Medje, Avikuba-Aruwimi, extending westward to the mid Congo basin, and eastward to the Semliki Valley. (Map 8).

### *Charaxes cynthia parvicaudatus* Lathy

(Pl. 24, figs. 215-222)

*Charaxes cynthia parvicaudatus* Lathy, 1926 : 94.

**MALE.** Fore wing length 35-40 mm., thus rather smaller than other races so far mentioned. *Upperside.* General pattern basically similar, but differing as follows: rufous areas at costa and base of fore wing paler; the black mid area represented in the cell by an almost free mark; the two rufous spots in discal line, beyond, usually distinct; the rufous orange bar with the subapical and other spots to 4 completely free, the spots of increasing size, those of 2-3 showing some indication of fusing with trace of marks in discal line, the mark in 1b more quadrate, that in 1a a streak, but the whole bar is relatively narrow. Marginal rufous marks small and indistinct except the double one at the tornus. Hind wing basal area rather more brownish, darkening to almost blackish at the discal band; the discal band is narrow, 5 mm. at the costa, irregularly parallel-sided and stopping short of the inner fold, rufous orange in colour, slightly paler at costa. The black postdiscal band is thus wide, fairly even on inner border but serrate on outer margin invading the outer border along the veins, this border rufous orange with slight black edge. Tails stumpy, 2-3 mm. long, mostly rufous. *Underside.* Ground colour as in most other races, but with a rusty bloom overall, the rufous pattern less strong, but black marks in 1b well developed; the disco-postdiscal series of pale spots rather obscured in upper portion but whitish in 1b; the black tornal triangles not very heavy. Hind wing pattern not strong in the basal area; the white bar narrow, clear-cut on inner border, more diffuse on outer where it merges into the inner row of postdiscal lunules; a series of white dots in submargin at apices of marginal lunules which are not usually strong; border rufous. (Pl. 24, figs. 215, 216, 219, 220.)

**FEMALE.** *Upperside.* In general appearance resembling somewhat the females of *cynthia cameroonensis* in respect to the pale bars through the wings. Fore wing length 45-46 mm.; basal rufous area at 1a-1b and over cell rather paler; the ochreous spots at the end of the cell and in the discal line, distinct and elongate, the upper postdiscal spots, rounded or elongate, the remaining spots in this line increasing in size and fused with spots in the discal line which may be rudimentary or of equal size, the mark in 1b rather quadrate. Marginal rufous marks large and conspicuous. Hind wing basal area brownish; the discal band rather parallel-sided up to cell area then tapering to inner fold, creamy ochreous in colour; the distal black band wide,

more or less straight on the inner side but serrate on the distal, with strong projections along the veins into the rather narrow rufous marginal border; edge narrowly black; tails relatively short, upper rather spatulate at end 6 mm. long, lower shorter, more stumpy 4 mm. *Underside.* Conforming to the general tone of the ground colour of the male; the disco-postdiscal spots forming the bar in the fore wing clearly indicated, creamy in colour; the black marks in 1b often strong and conjoined. The hind wing band creamy, strongly defined on inner border, less strong on outer where it merges with the inner lunate pale marks of the postdiscal zone, the adjacent brownish rufous zone rather well marked; the submarginal pale marks flanked proximally with rufous triangles; border rusty brown. (Pl. 24, figs. 217, 218.)

*Variation.* In some specimens the rufous areas of the fore wing may be dusted over with brownish scales; the marginal spots obscured. On the hind wing, the rufous marginal border reduced in width.

Specimens from N.W. Kenya in the Kakamega-Kaimosi forests belong to this aggregate. (Pl. 24, figs. 221, 222.)

Range: eastern Uganda, especially in the Mabira Forest and adjacent forest areas extending eastward in the forests of N.W. Kenya, Kaimosi-Kakamega-Nandi. (Map 8).

### *Charaxes cynthia propinqua* ssp. n.

(Pl. 23, figs. 209, 210, 213, 214)

This aggregate combines the features of *parvicaudatus* as regards shape and more particularly the very short tails, with the eastern Congo subspecies *kinduana* with regard to colour and pattern of the fore wing on upper side.

**MALE.** Fore wing length 36–38 mm. *Upperside.* Fore wing pattern bolder than in *parvicaudatus*, base of wing and costa rufous slightly more extended; the subcostal rufous spots in discal line and those of the postdiscal row larger throughout but more especially in the hind half of the bar; the rufous marginal spots larger and more pronounced. The hind wing discal band is wider, thus reducing the black band beyond; the marginal rufous border is wider. *Underside.* Fore wing pattern very similar to *parvicaudatus*, in general tone; black marks at base of 1b confluent, thus large and conspicuous; the hind wing white bar is narrow and more defined on both borders, the pattern is otherwise very similar. The tails are extremely short and stumpy. (Pl. 23, figs. 209, 210, type.)

**FEMALES.** The characteristics of the male reproduced in the female: fore wing length 45–47 mm. *Upperside.* Basal area bright rufous; rufous spots beyond cell and those in discal line usually bolder; the upper postdiscal spots large, those of 3 to hind margin large and fused with the discal spots so that the fore wing bar is wider; the marginal rufous spots bold. Hind wing band wider from costa to 2, the black band thus reduced in width; marginal rufous border wider than in *parvicaudatus*; tails thinner, upper 6 mm. lower 4 mm. with a slight upward kink as in *parvicaudatus*. *Underside.* Very similar to *parvicaudatus* in the fore wing; on the hind wing the white bar is more defined. (Pl. 23, figs. 213, 214, type.)

Holotype male. UGANDA: Katera Forest, Masaka, xi. 1953 (*van Someren*).

Allotype female. Same data.

Range: From the forests of western Uganda, Bwamba, Toro, Bugoma, Budongo, to the forests west of Lake Victoria in the Masaka district, Katera, and north of the Kagera River. (Map 8).

*Charaxes cynthia sabulosus* Talbot

(Pl. 25, figs. 223-230)

*Charaxes cynthia sabulosus* Talbot, 1928 : 229.*Charaxes cynthia sabulosus* f. *aurantiaca* Rousseau-Decelle, 1934 : 231.

Specimens of *cynthia* from the Katanga area present a rather puzzling picture for it would appear that the species is here subject to "seasonal variation" [*sic*] producing so-called "wet" and "dry" forms. This gives rise to some difficulty in determining the characteristics of the subspecies as a whole. In the original description Talbot states "a well defined race from Katanga"; but the description is involved since it concerns two specimens, the type and a paratype which are slightly different. I have before me a small number of topotypical specimens which exhibit marked variation, in both sexes. It seems desirable therefore to quote the original description of the type.

Fore wing length 40 mm., "distinguished by its paler brown coloration on both sides. Fore wing above with the postdiscal brown band of spots continuous to cellule 7, the spots above vein 4 larger than in typical form, and spots in 2 and 3 not invaded by the ground colour . . . Band of the hind wing broader than in typical form, being extended distad. Brown scaling in the cell more marked than in typical form . . . Underside with the dark brown markings obsolete and black spots smaller. . . . The white band on the hind wing is sharply defined along both its edges. . . ."

Type ♂, Kinda, Katanga (*Overlaet*).

The characters of the paratype are: "the marginal spots [f.w.] are merged together to form a continuous broad marginal line . . . the hind wing cell is strongly brown. . . . The white band of underside only reaches to just below vein 2."

I have before me two topotypical males taken by Overlaet at Kafakumba, Katanga. One is described as a "dry form", the other as a "wet form".

"Dry form": *Upperside*. Fore wing rufous. Coloration extends along the costa, over the whole cell and slightly beyond and in the bases of 1a-1b and slightly in 2-3 so that the black mark at end of cell is entirely free. The black median band is thus narrow, but the two upper rufous spots in the discal line are large and free. The rufous orange bar is continuous from 7 to the hind margin, the spots increasing in size, those in 2-3 with slight indication of remnants of discal marks. The rufous marginal marks bold. The hind wing discal band is moderately broad, 6 mm. at costa, almost parallel-sided, tapering out at vein 2; black band widest at 5-6, even on inner edge, slightly serrate on outer; rufous border rather wide; tails thin, upper 7 mm., lower 5 mm. *Underside*. Vinaceous grey-brown, rufous basal bars not strong; black sub-basal marks in 1b relatively small, tornal mark moderate; pattern of disco-postdiscal bar rather obscured. Hind wing with most of the pattern obscured except that of the white discal line which is narrow but strong, clearly defined on both edges, and almost straight. (Pl. 25, figs. 229, 230.)

"Wet form": *Upperside*. Fore wing basal rufous coloration rather darker and slightly less extensive; black median zone considerably wider, the two subcostal spots in the discal line almost obscured; distally, the band encroaches onto the upper postdiscal row of spots which are considerably smaller, so that the whole bar is narrower and darker rufous than in the "dry" form; the rufous marginal spots are very small, except those at the tornal angle. The hind wing basal area darker; the discal band narrow and stops short at 2; the black band wider than in the "dry" form so that the rufous marginal border is restricted in width. *Underside*. Ground colour slightly darker, but the pattern is stronger.

Both these specimens were taken in September. According to Chapin, the rainy season in Katanga is October to May, the dry from June to September.

A further dark form, "wet" presumably, was taken at Kindo, Katanga, in April. *Upperside*. In general appearance it resembles the previous specimen, except that the rufous subcostal spots are obscured to a greater degree; the postdiscal bar narrower in 1a-1b; the marginal spots slightly more developed. In the hind wing the discal band is rather narrower and constricted in 6. *Underside*. Very similar to the previous specimen. (Pl. 25, figs. 223, 224.)

form *aurantiaca* Rousseau-Decelle, 1934 : 231

(Pl. 25, figs. 227, 228)

In sharp contrast to the two foregoing, we have the very "dry" male form described by Rousseau-Decelle and named *aurantiaca* which also came from Kafakumba in Katanga. No date of capture is mentioned for any of the three examples cited.

*MALE. Upperside*. Pale rufous orange on costa, the cell and just beyond, the bases of 1a-1b, slightly in 2-3, thus enclosing the black mark at end of cell which is entirely free; there are two spots beyond the cell in the discal line; the postdiscal bar consists of a small subcostal spot, then a series of larger spots increasing in size to the streak in 1a, the bar is wider than in other forms and pale rufous orange; margin with large conspicuous marks from apex to hind angle. Hind wing basal area rufous slightly darker at base of 6, discal band light rufous orange, pale at costa but darkening in 2 and along the outer border; black band, comparatively narrow irregular on both sides; marginal border wide, pale rufous orange. Tails as in other specimens. *Underside*. Vinaceous grey with rusty suffusion, the pattern almost obsolete even to the dark marks in 1b. The hind wing basal area almost uniform followed by a distinct narrow white bar stopping short at 2, the remainder of the pattern obscured, except for a series of pale rounded marks in submargin. (Pl. 25, figs. 227, 228.)

*FEMALE*. The female does not seem to have been described and the only one available to me appears to belong to the "wet" form. *Upperside*. Fore wing rufous basal area extending over the cell and slightly beyond with only slight rufous tinge at base of 1b; the black spot at end of cell almost free. Fore wing bar rather wide since the upper spots of the postdiscal line are large with gradual increase in size to hind margin, spots in 2-3 with slight conjoined marks of the discal line, the spots of this line in 5-6 well developed, large. The marginal lunules large and distinct. Hind wing basal area brownish, more rufous toward inner fold; discal band almost uniform in width from costa to 2 then tapering to inner fold above the anal angle. Black band moderately broad, even on inner side very slightly dentate at upper part on distal side; marginal border fairly wide with very narrow black edge; upper tail robust with rounded end 6 mm., same colour as border, lower tail of about same length, darker, thinner, bluntly pointed; anal angle with two white dots. *Underside*. Fore wing basal area vinaceous grey with rufous bars and black marks strong; disco-postdiscal bar fairly clearly indicated, creamy, but whitish in 1a-1b; submarginal pale marks with dark spots proximally fairly strong; marginal lunules well represented. Hind wing ground colour as fore wing in basal area but dark lines strong, especially that adjoining the discal white bar which is thus defined on the inner edge but rather merging with the irregular lunules on the distal side; dark brownish band strong, less so on outer edge where it abuts onto the marginal rather ill-defined pale lunules; border narrowly rufous. (Pl. 25, figs. 225, 226.)

From the above descriptions it will be noted that the subspecies *sabulosus* is represented by a rather mixed aggregate, with combined features which separate it from other races.

Range: All the specimens I have seen and those on record appear to have been taken in the Katanga area of S. Congo, at Kinda, Kafakumba and Thisboba so that its wider range is thus unknown. (Map 8).

*Charaxes cynthia mukuyu* ssp. n.

(Pl. 23, figs. 207, 208, 211, 212)

The series of specimens on which this race is based represent one of the most distinctive subspecies of *cynthia*. In some respects it resembles the race *sabulosus* but is easily distinguishable both above and below. It is characterized by the great reduction of the black areas on the upper side of both fore and hind wing; the paler more orange of the rufous areas. On the underside, the pattern is suppressed, including the white bar on the hind wing which, in some specimens is almost vestigial; in such cases there is in fact a slight resemblance to *Charaxes buetti macclounii*.

MALE. Fore wing length 39–40 mm. *Upperside*. Costa and basal area bright rufous orange extending well beyond the end of the cell, the basal areas of 1a–1b, 2 and 3, the black mark at end of cell much reduced to an inverted comma; the black central band thus much reduced in width; the two subcostal marks in the discal series large, quadrate and contiguous, with clear indication of spots in 2–3, the latter often free, and an indication of black in 1b showing line of junction of the marks in this area; the postdiscal spots from subcosta to 4 of about even size, those from 3 to hind margin increasing in size; the bar thus appears divided in upper sector; marginal spots usually fairly large especially at the tornal angle. Hind wing basal triangle rufous brown, slightly darker in mid area and where it meets the discal rufous orange band which is slightly expanded at the costa, more or less parallel-sided to above 2 where it tapers and fades out before reaching the inner fold. The black postdiscal band is reduced in width, widest in 6–7 where the outer border is serrate then tapering to above the hind angle, where, the lower spots may be free or slightly conjoined; the rufous orange marginal border is thus wide and very narrowly black-edged; tails short and pointed, of about equal length, 3–4 mm. *Underside*. Ground colour rather pale rufous ochreous with less vinaceous shade; the rufous bars finer and less obvious; the black marks less strong, but those in 1b often conjoined to form a rough oval; the tornal mark rather blurred. The disco-postdiscal pattern of spots not strong, though whitish in 1a–1b. On the hind wing the discal white line is thin and though dark edged on inner side may be much reduced; the postdiscal lunules, except toward anal angle obscured; pale submarginal lunules obscured; the rufous border not strong. (Pl. 23, figs. 211, 212.)

FEMALE. Fore wing length 42–44 mm. Basal area including the cell and base of 1b and slightly that of 2–3 bright rufous orange, extending beyond end of cell and here enclosing the black inverted "comma" mark as in the male. Mid bar narrow black and interrupted in base of 4 by a quadrate creamy ochre mark, part of the discal series which starts as two elongate quadrate marks in 5–6, represented in 3 by a crescentic mark, the lower mark fused with the postdiscal row of large creamy ochre marks extending to the hind margin in 1a; margin with conspicuous rufous marks which are almost contiguous. Hind wing basal triangle rufous brown, rather restricted owing to the width of the discal band which is almost parallel sided, but tapering to above the anal angle, the outer edge tinged with rufous; the black band narrow, constricted at costal end, outer border serrate at upper end, tapering to anal angle where there are two white dots. Marginal border rufous, wide, narrowly black edged; tails rather thin, upper 6 mm. lower 4 mm. slightly up-curved. *Underside*. General tone similar to that of the male; the fore wing rufous bars thin; the black mark sub-base in 1b an oval, the tornal mark moderately strong; the disco-postdiscal bars broad rather diffuse except in 1a–1b; margin diffusely rufous. Hind wing, basal area as fore, broad discal band sharp-cut on inner edge but diffuse on outer where it merges into the pale lunules which are only slightly visible, the dark band is outwardly

edged with paler lunules; the border rufous, with two black spots in anal angle. (Pl. 23, figs. 207, 208.)

*Variation.* FEMALE. *Upperside.* Pattern for fore wing very similar to nominate *mukuyu* but basal rufous coloration darker; the black triangle at bases of 1a-3 broader at base. Disco-postdiscal series of creamy ochre marks as in the other female but broader; marginal lunules less defined. Hind wing basal are darker rufous brown; discal band wide, broadest at costa and tapering to above angle; the black band still narrow consisting of a series of contiguous oval black marks, small at costa, and extending to anal angle; rufous border broad; tails shorter. *Underside.* Ground colour as in other female but pattern stronger and more defined; this applies particularly to the creamy bands on both wings and especially to the hind wing where the postdiscal pale and rufous lunules are strong.

Holotype male. TANZANIA: Kigoma District, at Mukuyu Forest, v. 1965 (Major I. Grahame), deposited in B.M. (N.H.)

Allotype female. Same locality, vii. 1965.

Material examined, nine males and two females taken by African collector for Major Grahame and by the Japanese Primate Expedition. (Map 8).

## SYSTEMATIC LIST

*Charaxes cynthia* Butler

*Charaxes cynthia cynthia* Butler, 1865. Type locality: Ashanti. Type in B.M. (N.H.) ♂.

= *lysianassa* Westwood, 1874. Type locality: Ashanti. ♀.

= *guineensis* Le Moul't, 1933. Type locality: French Guinea. ♂.

Range: W. Africa, Guinea, Liberia, Ivory Coast, Ghana to Nigeria to Niger River.

*cynthia cameroonensis* ssp. n.

= ab. *cizeyi* Lathy, 1926. Type locality: Cameroon. ♀.

= f. indiv. *angusticlavius* Rousseau-Decelle 1934. Type locality: French Congo, Etumbi. ♂.

= f. indiv. *albofascia* Le Cerf, 1923. Type locality: Cameroon, Bitje. ♀.  
Range: Cameroon rain forests, S.E. Nigeria, Central African Republic. Moyen Congo, west of Congo Basin.

*cynthia kinduana* Le Cerf, 1923. Type locality: E. Congo, Kinda on upper Lualaba River. Type in Paris Mus. ♂.

= ab. *mawamba* Grünberg, 1912. Type locality: eastern Congo, Awamba, west of Lake Albert; *en route* Awamba-Avukuba-Aruwimi. Range: From the Kivu Prov. of eastern Congo, along the Lualaba River to Medje N.E. Congo, west to Congo Basin; east to Semliki Valley.

*cynthia propinqua* ssp. n. Type locality: Uganda, Katera Forest.

Range: W. Uganda, Toro forests, Bugoma, Budongo, Bwamba, Kalinzu, Katera, Entebbe.

*cynthia parvicaudatus* Lathy, 1926. Type locality: Uganda, Mulange, Mabira Forest.

Range: Uganda; Busoga, Mabira Forest, Jinja, Kenya; N.W. Kapwarens forests, Kaimosi, Kakamega, Kabras, Nandi, Kipkarren.

- cynthia sabulosus* Talbot, 1928. Type locality: Kinda, Katanga. ♂.  
Tervuren Mus.  
f. indiv. *aurantiaca* Rousseau-Decelle, 1934. Type locality: Katanga,  
Kafakumba.  
Range: Katanga, at Kinda, Kafakumba, Thisbobo. Upembe Park.  
lower Kasai.
- cynthia mukuyu* ssp. n. Type locality. Tanzania, Kigoma, Mukuyu.  
Range: Tanzania, N.E. of Lake Tanganyika in the Kigoma district, at  
Mukuyu and Muhimo forests.

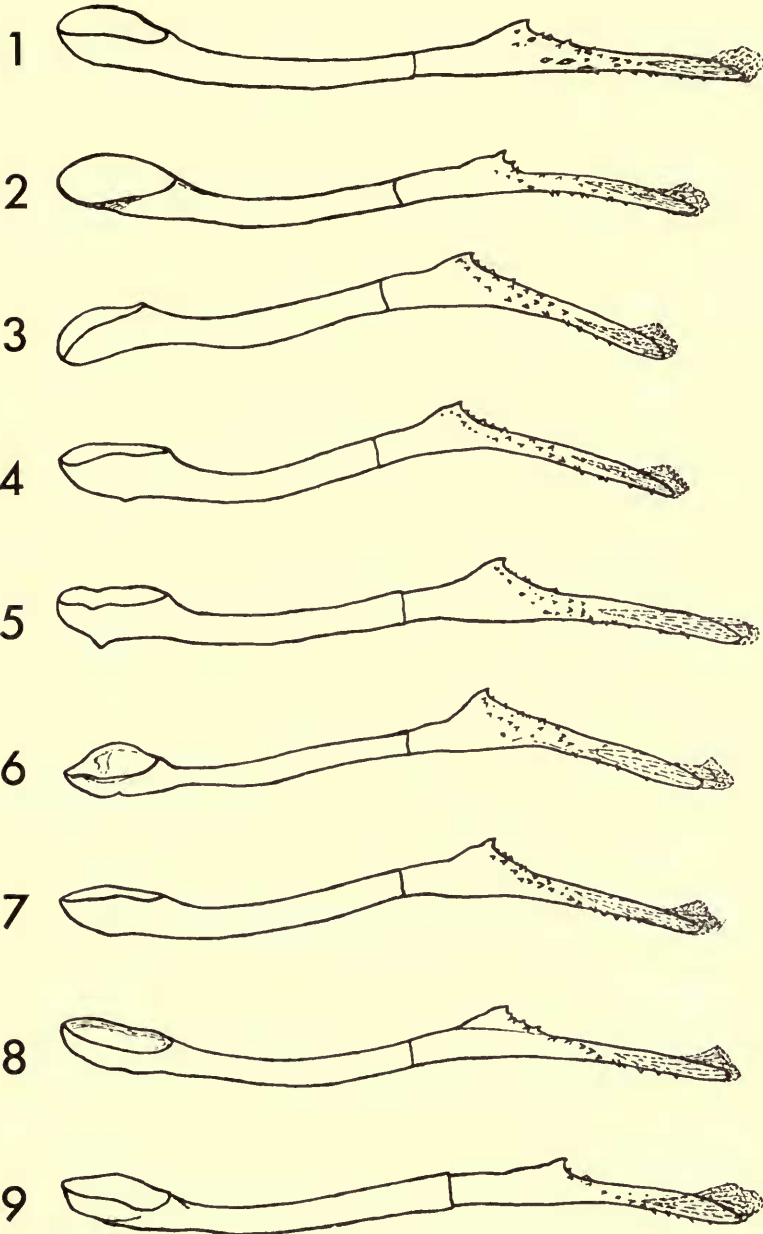
## ACKNOWLEDGEMENTS

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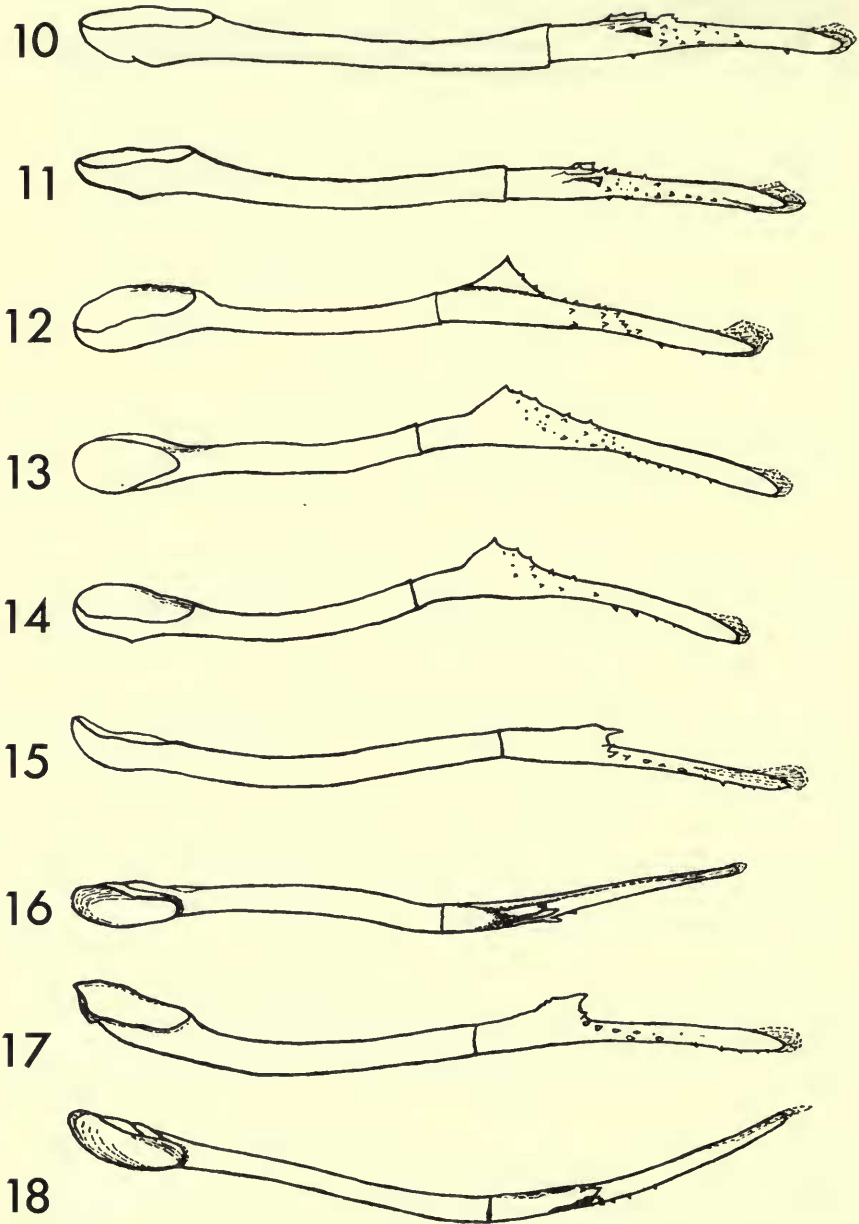
The staff of the Entomological Department, B.M. (N.H.), London; Mr. E. Taylor of the Hope Dept., University Museum, Oxford, England; Major Iain Grahame, Lamarsh, Suffolk, England; Dr. Arthur Rydon, N. Chailey, Sussex, England; Dr. Viette and Dr. Bernardi, Natural History Museum, Paris; Dr. Berger, Central African Museum, Tervuren, Belgium; Dr. Kasy, Vienna Museum, Austria; Monsieur J. Plantrou, of Paris; Dr. Fox, Carnegie Museum, Pittsburgh, U.S.A.; Dr. Hannemann, Natural History Museum, Berlin; Dr. E. Pinhey, National Museum, Bulawayo; the late Dr. G. van Son, Transvaal Museum, Pretoria, S. Africa; Mr. K. M. Pennington Balgowan, Natal; Mr. D. C. Plowes, Umtali, Rhodesia; Dr. C. B. Cottrell, Salisbury, Rhodesia; Mr. H. D. Handman, Zomba, Malawi; Mrs. Joan Wedekind, Mumbwa, Zambia; Mr. B. Barton-Eckett, Bathurst, Cape Prov., S. Africa; Dr. C. H. McCleery, Lindi, Tanzania; Mr. J. H. Bailey, Menengai, Kenya; the late Mr. T. H. E. Jackson, Kitale, Kenya; Mr. R. H. Carcasson, National Museum, Nairobi, Kenya; and Mr. H. D. van Someren, Endebess, Kenya.

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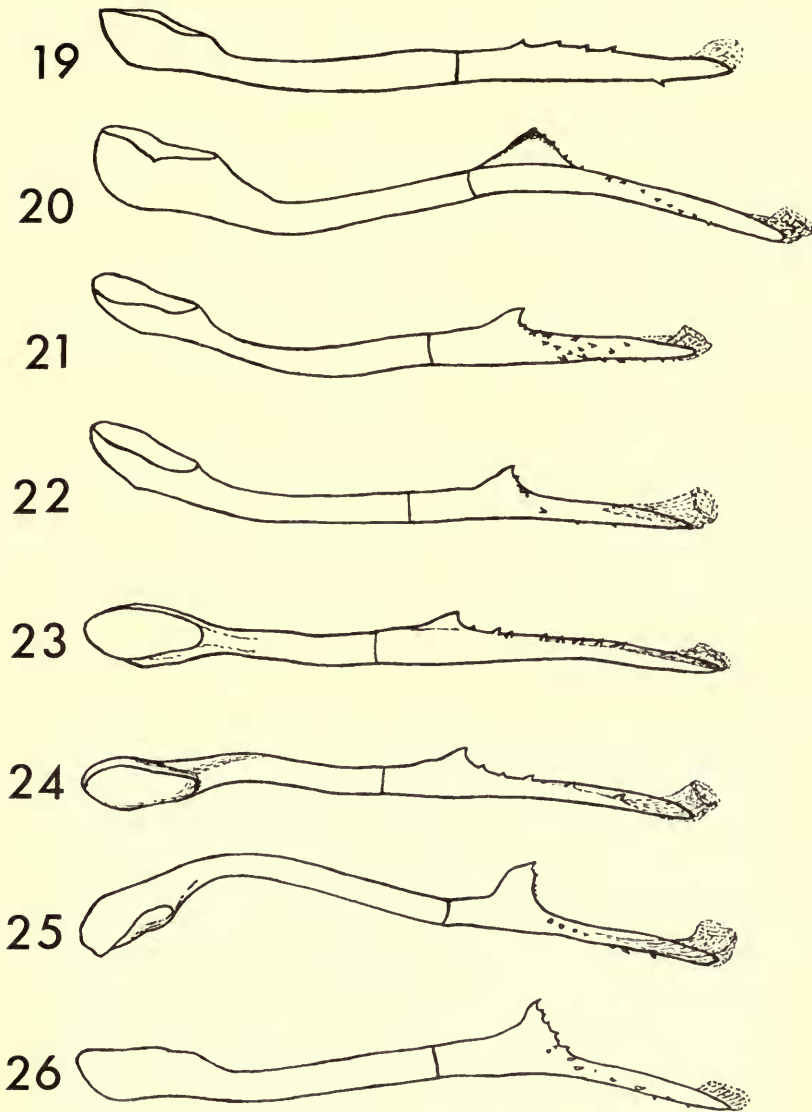




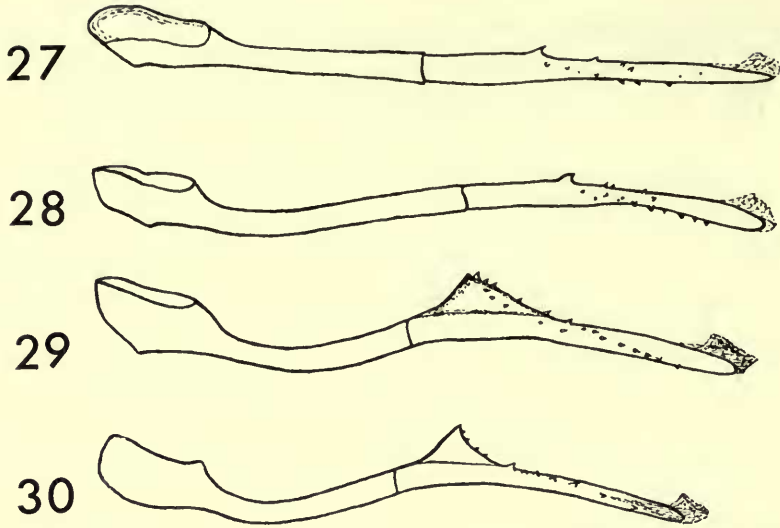
FIGS. 1-9. Aedeagi of *Charaxes* spp. 1, *etheocles etheocles* (Cramer), Nigeria (Prep. 64, A. H. B. Rydon); 2-4, *etheocles carpenteri* Poulton, ♂ f. *catachrous*, Katera, Uganda (Preps. 669, 670, T. G. Howarth; prep. 55, A. H. B. Rydon); 5-6, *etheocles evansi* van Someren, Kitale, east Mt. Elgon, Kenya (Preps. 61-62, A. H. B. Rydon); 7-8, *grahamei* van Someren, Kigoma Dist., N. E. Lake Tanganyika, Tanzania (Preps. 672, 671, T. G. Howarth); 9, *mafuga* van Someren, Mafuga Forest, Kigezi, Uganda (Prep. 10, A. H. B. Rydon). Del. A. H. B. Rydon.



FIGS. 10-18. Aedeagi of *Charaxes* spp. 10-11, *berkeleyi* van Someren & Jackson, Karen, Ngong, Kenya (Preps. 56-57, A. H. B. Rydon); 12, *aubyni aubyni* Poulton, Teita Hills, Kenya (Prep. 173, A. H. B. Rydon); 13-14, *baileyi* van Someren, Visoi Gap, west Rift Valley, Kenya (Preps. 51-52, A. H. B. Rydon); 15-16, *pembanus* Jordan, Pemba Island, N.E. of Zanzibar, East Coast (Prep. 170, A. H. B. Rydon), lateral and dorsal views; 17-18, *usambarae* van Someren & Jackson, Amani, lower forests, Usambara Mts., Tanzania (Prep. 169, A. H. B. Rydon), lateral and dorsal views. Del. A. H. B. Rydon.



FIGS. 19-26. Aedeagi of *Charaxes* spp. 19, *karkloof* van Someren & Jackson, Mt. Karkloof, Natal, S. Africa (Prep. van Son); 20, *credreatis* Hewitson, ♂ *lutacea* Rothschild, Kisubia Forest, nr. Entebbe, Uganda (Prep. 175, A. H. B. Rydon); 21, *alpinus* van Someren & Jackson, Vumba Mts., Rhodesia (Prep. van Son); 22, *alpinus nyikensis* van Someren, Nyika Plateau, Malawi (Prep. van Son); 23, *ethalion littoralis* van Someren, Marere Forest, Shimba Hills, Kenya Coast (Prep. 176, A. H. B. Rydon); 24, *ethalion ethalion* Boisduval, Natal, South Africa (Prep. van Son); 25, *petersi* van Someren, Liberia & Ivory Coast (Prep. 50, A. H. B. Rydon); 26, *Charaxes* sp. nov.? Bunduki Hill, Uluguru Mts., Tanzania (Prep. 164, A. H. B. Rydon). Del. A. H. B. Rydon.



FIGS. 27-30. Aedeagi of *Charaxes* spp. 27-28, *contrarius* Weymer, Zombo Forest, Kwale Dist., Kenya Coast (Preps. 58-59, A. H. B. Rydon); 29, *viola kirki* Butler, Mackinnon Road, Coast belt, Kenya (Prep. 177, A. H. B. Rydon); 30, *manica* Trimen, Mpanda, Tanzania (Prep. 3, A. H. B. Rydon). Del. A. H. B. Rydon.

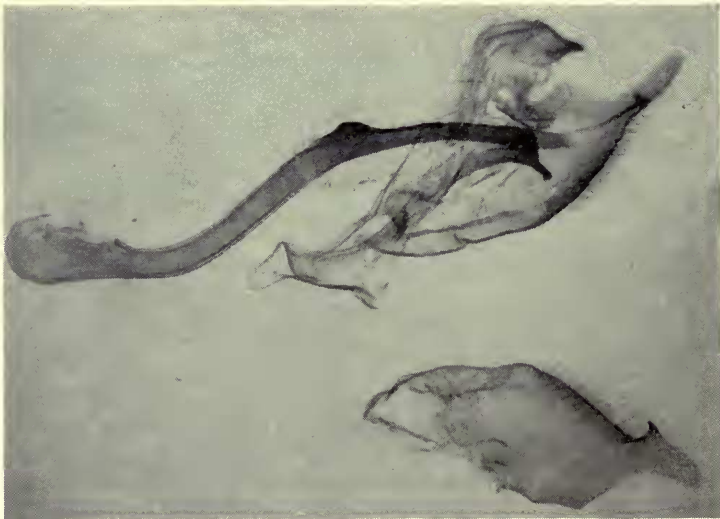


FIG. 31. *Charaxes kheili* Staudinger. Type ♂ genitalia. B.M. Neg. No. 8749.